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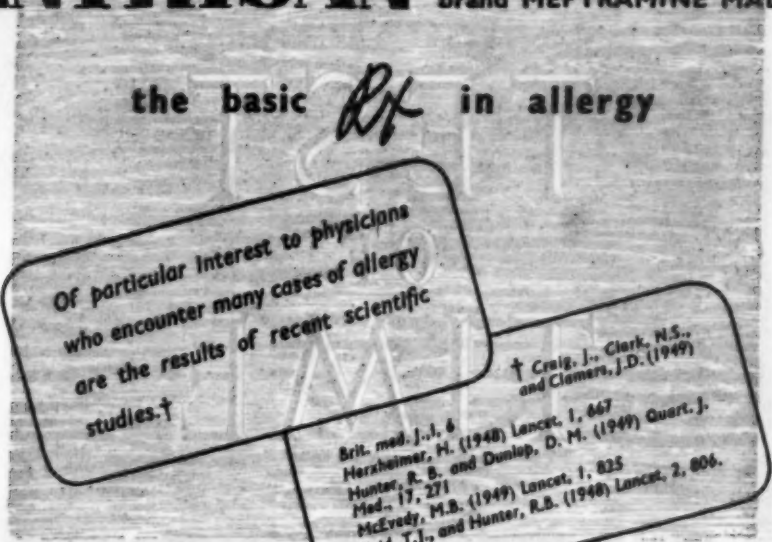
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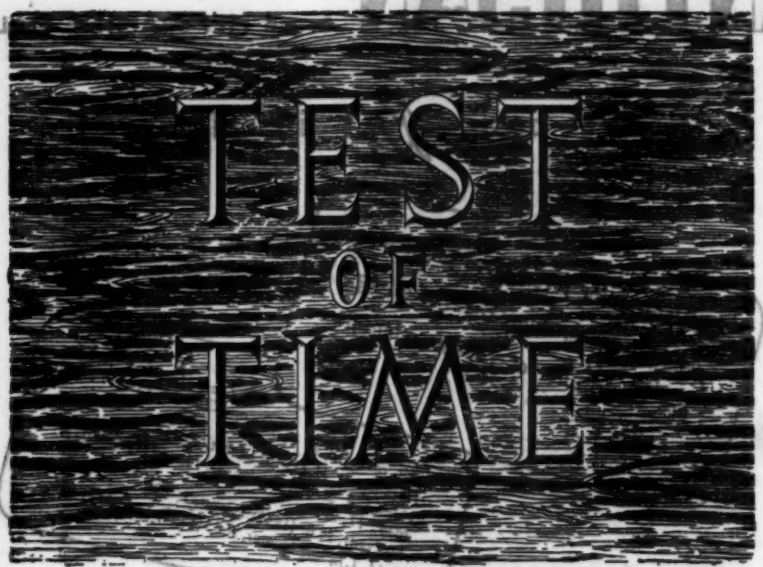

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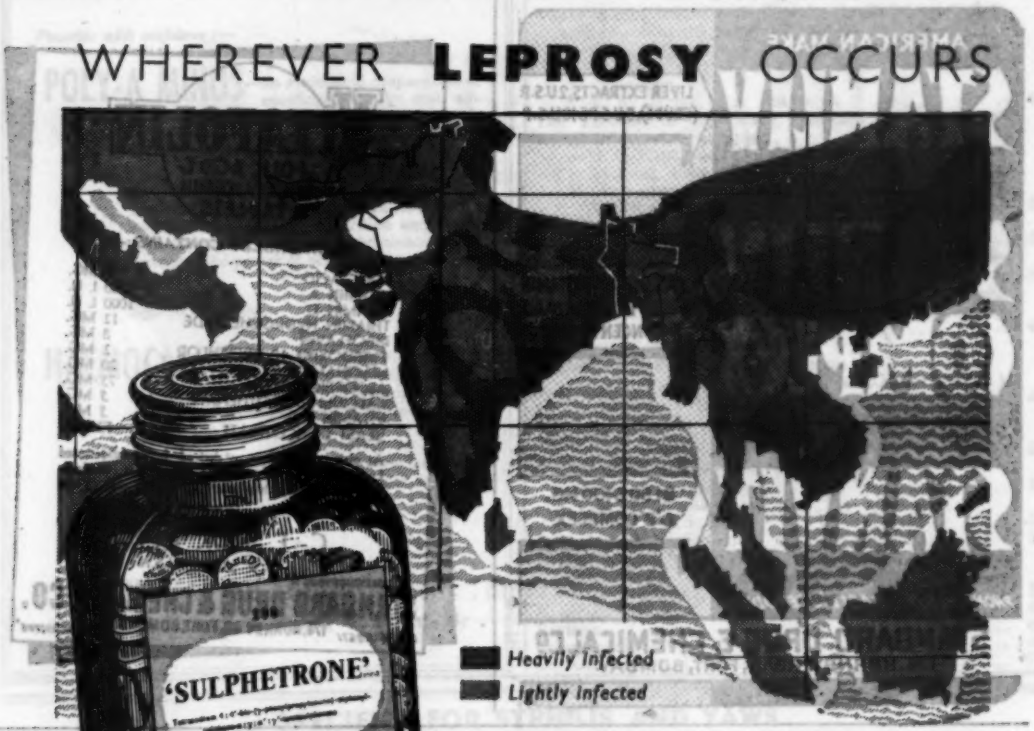

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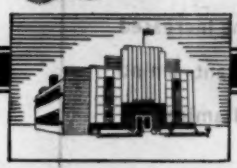

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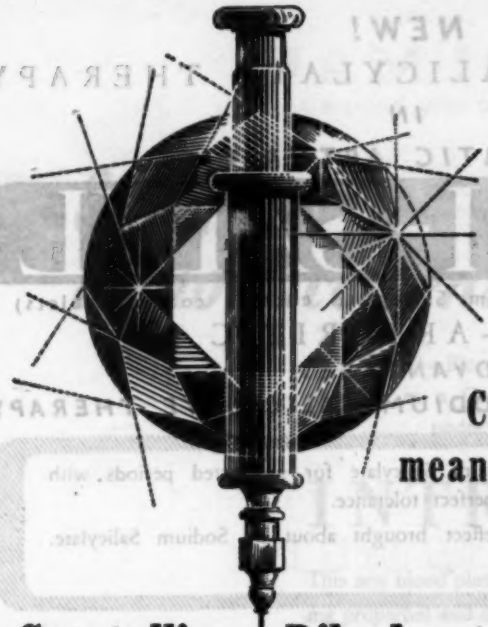

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Journal of the Indian Medical Association

VOL. XX, No. 2 CALCUTTA NOVEMBER, 1950

It is with deep regret and profound sorrow that we announce the sudden and untimely passing away of our Editor, Dr. K. S. Ray, M.A., B.Sc., M.B., Ch.B., F.S.M.F. on the 24th October, 1950, at Vellore, Madras.

A life sketch of Dr. Ray will appear in the December 1950 issue.

B. P. NEOGY
P. K. GUHA
Assistant Editors,
J. Indian M. A.

TOXIC MANIFESTATIONS AND THERAPEUTIC FAILURES

pyrexia without allaying toxæmia. The pulse remained frequent and anorexia, malaise, insomnia and asthenia persisted.

The sudden drop of temperature to a subnormal level (95°F to 96°F) brought in complications like vascular collapse having intense perspiration, cold and clammy extremities with rapid and thready pulse. Mollaret *et al* (1950) report two deaths as a result of this sudden collapse and we have recorded one.

(2) In some cases chloramphenicol probably aggravates the already existing alimentary disorder or may initiate the process. Abdominal distension and diarrhoea are not relieved, rather seem to be accentuated by this drug.

Ramli (1949) records instances of stomatitis and glossitis which are, in most instances, due to typhoid toxæmia, oral sepsis and avitaminosis—especially B complex deficiency.

Nausea (with or without vomiting) is a frequent and common complaint.

(3) Eczematous and erythemopapular skin rashes have been recorded by Patel *et al*. Musotto. Ramli and

of chloramphenicol within periods of 48, 26 and 40 hours respectively. A patient (Case 3) in the Lake Medical College Hospitals died though 21 gms. of chloramphenicol was administered within eight days of his survival.

(9) There are evidences that chloramphenicol is not so satisfactory and reacts slowly in paratyphoid group of infections—specially when compared with the typhoid series.

(10) "The greatest drawback to chloramphenicol is that in the doses used it is often bacteriostatic rather than bactericidal." In Rumball and Moores' (1949) case 15·75 gms. of chloramphenicol in course of seventeen days produced only transitory negative stool culture.

(11) Reports published by various authors show that even intensive treatment with chloramphenicol would fail to prevent occasional 'relapse' in the course of enteric fever. Ramli (*loc cit.*) records 7 'relapses' out of seventeen patients treated with the newer drug.

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VOL. XX, No. 2 CALCUTTA NOVEMBER, 1950

TOXIC MANIFESTATIONS AND THERAPEUTIC FAILURES OF CHLORAMPHENICOL IN THE TREATMENT OF ENTERIC FEVER

A Review with illustrative Case Records

S. K. MUKERJEE, M.B. (CAL.), M.R.C.P. (LOND.), D.T.M. & H. (LOND.),
Hony. Senior Visiting Physician
AND
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Senior House Physician, Lake Medical College Hospitals, Calcutta

The new antibiotic chloramphenicol is a unique weapon in our therapeutic armamentarium for effectively combating the enteric group of infections. Extensive literatures published have proved the efficacy of this drug to cut short a longlasting malady—in fact, defervescence ensues within 48 to 72 hours, toxæmia lessens remarkably, excretas produce negative cultural results, Widal reaction decreases to a low titre within ten days of the introduction of this therapy.

Only very recently, attention has been drawn towards toxic manifestations and therapeutic failures of chloramphenicol especially when prescribed in big doses (3 to 4 gms. in 24 hours). Big doses were preferred because small doses caused frequent relapses.

The following adverse clinical effects were noted while treating enteric cases with chloramphenicol:

(1) The drug acted as if it was just an antipyretic without allaying toxæmia. The pulse remained frequent and anorexia, malaise, insomnia and asthenia persisted.

The sudden drop of temperature to a subnormal level (95°F to 96°F) brought in complications like vascular collapse having intense perspiration, cold and clammy extremities with rapid and thready pulse. Mollaret *et al* (1950) report two deaths as a result of this sudden collapse and we have recorded one.

(2) In some cases chloramphenicol probably aggravates the already existing alimentary disorder or may initiate the process. Abdominal distension and diarrhoea are not relieved, rather seem to be accentuated by this drug.

Ramli (1949) records instances of stomatitis and glossitis which are, in most instances, due to typhoid toxæmia, oral sepsis and avitaminosis—especially B complex deficiency.

Nausea (with or without vomiting) is a frequent and common complaint.

(3) Eczematous and erythemopapular skin rashes have been recorded by Patel *et al*, Musotto, Ramli and Shah. We noted purpuric rashes in one patient.

(4) Patel *et al* (1949) reported an instance of rigor within twenty four hours of treatment. We have recorded bouts of rigor (1-2-3 times a day) in a severe and fatal case of typhoid fever having full doses of chloramphenicol.

(5) Shah (1949) noted signs of cerebral irritation in seven cases treated with the newer antibiotic. Meningism is sometimes a feature of enteric fever; on occasions we have noted that the cerebral phenomenon was not favourably affected by treatment with chloramphenicol, restlessness, carphology and skin irritation (pruritus) aggravated to some extent.

(6) Oliguria and retention of urine are sometimes troublesome features in patients with unabated toxæmia and undergoing treatment with chloramphenicol. (Shah, 1949 and Vakil, 1949). We also had a similar experience.

(7) It was noted that chloramphenicol could not prevent intestinal perforation and haemorrhage even when the patient came down to afebrile stage. (Woodward *et al*, 1948). We noted melena in two cases soon after (48 to 68 hours) starting antibiotic therapy.

(8) When chloramphenicol therapy is instituted late (average two weeks) in the severely toxæmic types of enteric patients and inspite of heavy doping with the drug—the prognosis remains gloomy.

In the series of six cases published by Patel *et al* (*loc. cit.*) three died after receiving 8, 5·5 and 6 gms. of chloramphenicol within periods of 48, 26 and 40 hours respectively. A patient (Case 3) in the Lake Medical College Hospitals died though 21 gms. of chloramphenicol was administered within eight days of his survival.

(9) There are evidences that chloramphenicol is not so satisfactory and reacts slowly in paratyphoid group of infections—specially when compared with the typhoid series.

(10) "The greatest drawback to chloramphenicol is that in the doses used it is often bacteriostatic rather than bactericidal." In Rumball and Moores' (1949) case 15·75 gms. of chloramphenicol in course of seventeen days produced only transitory negative stool culture.

(11) Reports published by various authors show that even intensive treatment with chloramphenicol would fail to prevent occasional 'relapse' in the course of enteric fever. Ramli (*loc cit.*) records 7 'relapses' out of seventeen patients treated with the newer drug.

Similarly, Roy Chowdhury (1950) records 5 'relapses' in a group of twenty cases treated with chloramphenicol.

The toxic manifestations of chloramphenicol have been attributed to large doses of the drug which cause rapid lysis of the typhoid bacilli in mass with consequent liberation of large doses of endotoxin from the killed bacilli, sudden vascular collapse is probably a toxic phenomenon due to the typhoid endotoxin paralysing the vasomotor centre and/or the peripheral and splanchnic vessels (?)

Patel *et al* (*loc. cit.*) suggested such a possibility and Mollart *et al* (*loc. cit.*) demonstrated with characteristic necropsy findings and animal experiments. Postmortem showed the tissues to be free from organisms, but the deeper viscera and lymph glands were characterised by intense vasodilatation and absent cellular response. In animal experiment a series of guinea pigs were inoculated with *S. para B.* which produceed potent endotoxin in the system. Half kept as 'controls' and the remainder drugged with chloramphenicol. All the animals died, but the 'drug group' died earlier (18 to 24 hours), whereas the control group survived longer (8 to 10 days), a third non-inoculated group but doped with chloramphenicol remained normal. Autopsy revealed marked congestion of the abdominal lymph nodes in the 'drug group' of animals.

Earlier observers administered big doses which probably gave rise to occasional toxic reactions. Douglas (1950) and Murgatroyd (1949) gave 4 gms. in the first hour and 0·25 gm. every two-hours till the patient was afebrile, Montuschii (1949) gave 0·5 gm. three hourly, Patel *et al* (*loc. cit.*) gave 1 gm. in the first and second hours—this was followed by 0·25 gm. two-hourly till remission of fever. Lomax (1949) gave 4 gm. initially and 1·5 gm. twice daily. The variegated doses thus prescribed preclude proper clinical evaluation of the drug. More recently the dosage of chloramphenicol has been rationally standardized in order to make it more effective and less toxic and to prevent any unfortunate 'relapse'.

The manufacturer advises that the "daily dose schedule of chloromycetin in the acute phase of typhoid fever should be calculated on the basis of 60 mg. per kilogram of body weight and this total daily dose administered at four to six hour intervals until the period of defervescence has been reached. While the relapse rate and the persistence of positive stool culture have not been appreciable, it is recommended that 3 gms. of chloromycetin be given daily for seven to ten days after the afebrile period is attained. In the event there is a persistence of a positive culture during a five to seven day period of postconvalescent observation, or if there is any sign of relapse, treatment should be resumed with 3 gms. daily for three to five days or more as clinical conditions dictate." For infants and children the dosage is calculated on the basis of 100 mg. per kilogram of body weight per day and administered at four to six hourly intervals. "The interval between doses never should be longer than eight hours, however, to prevent a drop in the concentration of the drug in the blood below a minimum effective level." In our opinion, four hourly administration of the drug is as effective as two hourly dosage; moreover, longer time intervals disturb the patient less—as frequent forced feeding of a toxæmic typhoid patient puts on extra strain on the enfeebled heart. (Under these circumstances we resume nasal feeding, and rectal administration is also advocated). Mollaret and his colleagues (*loc. cit.*) suggest still more lower dosage, *viz.*, 2 gms. in 24 hours, and this is to be continued for two weeks. After a short interval, the course may be repeated.

The total dosage of the drug, ranging from 10 to 15 gms. is quite sufficient for treating average cases of enteric fever.

Parenteral administration of antitoxic sera during the first few days of chloramphenicol therapy has been suggested as a method for neutralizing the potent endotoxins from the dead bacilli.

There is also a possibility that "synergistic treatment of human typhoid infections with chloramphenicol and a sulphonamide" (sulphathiazole, sulphamezathine or sulphadiazine) may overcome tendency to relapse. We claim no experience of this method of treatment.

Case Reports

The following selected case reports from Lake Medical College Hospitals (Calcutta), may be of interest as all of them show some adverse clinical phenomena during treatment with chloramphenicol.

Case 1—Patient, a boy H.M. 10 years was admitted on the 10th day of continued pyrexia. Widal reaction and blood culture—positive. Chloramphenicol therapy was instituted on the 12th day, temperature came down to a subnormal level (96°F) by slow crisis on the 14th day, pulse remained thready and high (110-130), patient remained comatose but irritable and perspired constantly, frequent attacks of pruritus was a peculiar feature. Inspite of all resuscitative measures the patient died of peripheral failure on the 16th day. Total quantity of chloramphenicol given was 9 gms.

Case 2—Patient, H.F. 17 years admitted on the 12th day of continued pyrexia. Widal reaction and blood culture—positive. She was a toxic patient. Antibiotic therapy was started on the 13th day, already existing bowel complaints (diarrhoea, nausea, vomitting) seemed to be aggravated (?) by the drug. Nasal feeding started soon after to combat repeated vomiting of diet and drugs. Distended bladder had to be catheterised occasionally. On the 16th day the patient had three attacks of melena and the temperature touched normal. Melena persisted for the following four days. On the 18th day the patient was transfused 150 c.c. of fresh blood followed by moderate febrile (100°F) reaction and rigor. She made a slow recovery and tachycardia (100-120 per nir) was a notable feature during convalescence. Patient received 12 gms. of chloramphenicol from 13th to 18th days of illness.

Case 3—Patient, H.M. 12 years was admitted on the 15th day of unabated pyrexia. Widal reaction was

positive in high titre, blood count showed leucopenia. Clinically he was a toxic type of enteric fever where treatment was long overdue. Chloramphenicol therapy was instituted soon after admission. Day to day watch did not show any improvement in general condition. Bowels remained constipated, marked flatulence and distended bladder made the patient's condition more distressing. He was highly irritable and restless, required repeated doses of barbiturates and bromides to produce sedation. Tachycardia and tachypnoea were the added features and persisted all through the fatal course of the disease (inspite of routine prophylactic penicillin therapy to combat concomitant pulmonary infection). Blood pressure remained low 76/50 mm. of Hg., and temperature chart showed wide day-to-day fluctuation, 102·8°F to 105°F on the 16th day, 100°F to 103·8°F on the 18th day, 99·4°F to 105°F between 20th and 21st day. The patient died of peripheral failure on the 22nd day of illness, wide spiky variations of temperature and hyperpyrexia (106°F) were recorded prior to death. The patient received 21 gms. of chloramphenicol within 8 days of his survival in hospital.

Conclusion

In this short review (with clinical reports) no endeavour is made to minimise the therapeutic value of chloramphenicol against the enteric group of infections; on the other hand, we strongly believe that future statistics would prove decreased mortality rate with this newer antibiotic therapy.

We suggest proper standardization and regulation of dosage which will help slow bacteriolysis and apparently slower liberation of endotoxin which may be effectively neutralized by the system.*

Acknowledgment

We are particularly indebted to Dr. S. N. Sen, M.B. (CAL.), M.R.C.P. (EDIN.), Professor of Medicine, Lake Medical College for ready permission to use the records on Case 3 which belonged to his ward.

Our sincere thanks are due to Capt. K. L. Sen, F.R.C.S. (EDIN.), D.O.M.S., Superintendent, Lake Medical College Hospitals for his kind permission to publish the illustrative case notes.

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* All the cases reported received Chloromycetin (Chloramphenicol) manufactured by Messrs. Parke Davis & Company.

THE PROBLEM OF THE ACUTE ABDOMEN IN GENERAL AND APPENDICITIS IN PARTICULAR

M. G. KINI, M.C., M.B., M.CH. (ORTH.), F.R.C.S. (ED.), F.A.C.S., F.R.S. (ED.), F.N.I., F.A.SC., F.I.C.S.,
V. RAMACHANDRA RAO, M.B., M.SC. (ANDHRA)
AND
A. RAMACHANDRA RAO, M.B. (ANDHRA)

(Continued from previous issue)

Treatment of Appendicitis

When a correct diagnosis of appendicitis is made the only correct line of treatment is to remove the offending organ. Once it gets inflamed it is dangerous to have it in the abdomen. Instead of subserving as a good filter it becomes the seat of explosive affection endangering the life of the patient. The only debatable point is when to operate and when not. The guiding principles are well laid down depending on the individual case and individual judgment of a well trained conscientious surgeon.

(*a*) It is always safe to operate within 24 hours of the onset of the disease; the earlier the better.

(*b*) In cases after 24 hours it is better to study the condition of the patient. If the colic gets less and pulse becomes steady and pain gets localised the patient can be watched. It is better to carry out the well-known Ochsner-Sherran treatment, and operate on him during the interval.

(*c*) One should not operate when the disease is getting localised.

(*d*) If it leads to an abscess formation, incise the abscess and drain after giving sufficient time for the abscess to localise.

(*e*) In cases of the fulminating type of appendicitis operation should be done irrespective of the duration of the disease.

Position of patient during conservative or post-operative treatment—The well-known Fowler's position is the one usually adopted, but it is better to look to the comfort of the patient. It is immaterial which position is assumed so long as the patient feels comfortable. This is the main point in the treatment except in the cases of drainage of abscess in which high Fowler's position is advised.

Type of incision—McBurney in 1894 brought to the notice of the profession his famous approach. It has been improved by extending the incision medially and laterally when exposure becomes insufficient. Some surgeons want to improve on it by making it smaller to fish out the appendix through a chink hole. At least two cases in the experience of the author have shown the dangers of chink hole incisions as tubercular abdomens have been missed by the surgeons, who practised this type of incision. The removal of appendices through a chink hole is appealing and attractive to the fashionable women with a phobia, as the resulting scar is negligible. Walt C. Alverez (1940) has said: "There is nothing to commend it" except in our opinion that it satisfies the ego of the acrobatic-minded surgeon. The same author has quoted

an instance where a surgeon was inordinately proud, because the scar he made was 1" long but he was not so proud later when he learnt from his colleague that he had missed a carcinoma of ascending colon. In the series under review there were 10 cases of mobile cæcum. These would have been missed and could not have been easily dealt with through the small incision but it would have been easy for the surgeon to fish out the appendix and remove it through a buttonhole incision due to undue mobility of cæcum, without any benefit to the patients. The only use of a small incision in the author's opinion is for opening localised abscess. In one case where the abscess had to be drained for a longer period of time, even through this chink hole the case developed an incisional hernia which was repaired by silver filigree inlay between muscular planes (Kini, 1938). McBurney's incision has been employed in acute cases (Cases 7, 8, 44, 59, 60, 92 & 110) where localisation was definite. In one of the cases where the appendix was subhepatic, case no. 60, paramedian incision had to be resorted to in addition, to remove the appendix after a preliminary exposure of abdomen through a McBurney's incision, and failing to find the same. Case no. 96 was also a subhepatic appendix, but since the incision was paramedian there was no difficulty in removing it. It is our experience that pulling the guts through a chink hole causes more shock to the patient than by viewing and getting them out through a liberal incision. A surgeon who pays particular attention to aseptic technique by frequent check-up of the aseptic procedures in the operation theatre and the ward when stitch abscesses become frequent, need have no fear about ill consequences of big incisions, provided they are anatomically well designed and the sharp edges of knife or scissors are used for cutting instead of blunt tearing of the tissues. Over one thousand paramedian and paraumbilical incisions have been reviewed after operation for gastric and duodenal ulcers, appendicitis, cholecystitis, and various types of intestinal obstructions etc. No ventral hernia has occurred. Some cases, however, sometimes complain of pain while taking deep breath or while walking erect. This is due to adhesion of skin to the anterior sheath of the rectus and can be dealt with if the patients are instructed to massage the scar as a routine. Demonstrations are given at the end of the third week, how to massage to free the scar from underlying tissues.

Keloid in a few cases has occurred at the site of an incision but causing little discomfort except ugliness of the scar. In one case, however, of a perforating duodenal ulcer which was operated as an emergency, there was a big keloid. It is the considered opinion that keloids result from mild infection. They occur in burns and in infected scars. Even though the scar after removal of stitches appears healthy, a mild pinkishness 1 or 2 millimeters round the stitch hole, or a minute drop of pus is complacently overlooked. It is possible that the ligature material used may have something to do with the production of keloids. The case of keloid mentioned above suffered from itchiness which after scratching got infected and painful and grew bigger and thus a vicious circle was established. This was dealt with by cutting the skin well beyond the keloid and was resutured and was made to heal by primary intention. At the end of a week the stitches were removed and radium pad was applied with good result.

The incision practised by the senior author is a right paraumbilicical incision, the length of the incision depending on the depth of fat. This incision can be easily extended up for exploration of upper abdominal organs or down for exploration of lower abdominal organs. When the history is confusing as is shown in 31 cases with gastric history the incision for approach is a liberal right paramedian, one which enables the surgeon to have a good exposure to deal with the stomach, gall bladder and appendix. Appendix as a rule was removed in most cases while performing gastric operations with this type of incision, the pathological analysis of which has already been furnished (Kini and Row, 1939). Case no. 121, had a long omega-shaped pelvic mesocolon. It was plicated to prevent volvulus formation. It is unfortunate that no reply has been received to report on the result. It is sometimes necessary to remove appendices in a retrograde way. In case no. 13 which was pelvic, in case no. 60 which was subhepatic, in cases no. 65, 185 which were retrocolic, in case no. 150 which had perforated and was adherent to intestine this procedure had to be adopted.

Evaluation of conservative treatment—The object of this paper has been to evaluate also the results of cases treated conservatively to find out:—

(*a*) Whether the diagnosis of appendicitis was right.

(*b*) If the diagnosis was right, to see if the patients kept fit after the first attack without operation. It is not known whether they become chronic invalids and suffer fearing the consequences of an operation. It is also not kknown whether they get a serious attack and get operated elsewhere.

Only one case has replied in this series e.g., no 83 who has stated that he had colics 10 or 15 times, other physical condition remaining the same. No other case has replied, otherwise a lot of information could have been gathered.

Medical treatment—The advent of chemotherapeutic drugs like sulpha drugs and penicillin etc. might alter the outlook of cases of catarrhal type of appendicitis. This can only be judged by following up cases suspected of catarrhal appendicitis and treated by rest as outlined by Fowler and dieted as outlined by Ochsner-Sherren and given drugs such as sulphanilamide and penicillin.

Will the future surgery of appendicitis be limited to only obstructive types? This aspect of the question has to be carefully studied and watched after follow up. It was not possible to study this on a large scale. Though sulpha drugs were tried in some cases they led to very inconvenient complications due to individual idiosyncrasies and were not persisted with. Penicillin was not available for large-scale civilian use in Southern India until early 1947. The local use of streptocide has given satisfactory results. In cases

with frank pus and adhesions (see case no. 185), the post-operative course was smooth.

Mortality rate—The mortality rate is found to be between 3 and 4 cent, 5 cases dying out of 145 operated. A detailed analysis of these deaths is interesting.

2 out of 10 cases of acute abscesses died giving 20 per cent mortality (cases nos. 53 and 104).

1 out of 2 cases of peritonitis died giving 50 per cent mortality (case no. 151).

1 died due to gangrene and perforation giving 100 per cent mortality (case no. 6).

1 died out of 135 cases operated for interval or acute appendicitis. Case no. 178 died after a fit suddenly on the day proposed for discharge from the hospital. It is surmised that he died of thrombosis and embolism. No postmortem was allowed.

In Madras city the medical profession is sufficiently educated about the inadvertent administration of purgatives when they have to treat colics and constipation. This healthy state of affairs is due to the constant drilling of the axiom mentioned below into the minds of medical students. "When there is a colic pain and constipation it is better not to administer a purgative but it is a solemn duty to make a diagnosis." Only three cases (cases nos. 6, 96 and 149) were administered purgatives. Case no. 6 became gangreneous appendicitis and died after operation. In the moffusil areas the purgatives are still administered owing to lack of knowledge of surgery.

Statistical Survey of Appendicitis

With a view to assessing the incidence of this disease in various parts of India, a request was made to various hospitals recognised by the Indian Medical Council in the three important cities, Calcutta, Bombay and Madras as also to some big hospitals in the districts of Madras Presidency to furnish statistical details with regard to the following points:—

1. Total cases of appendicitis admitted in the years 1946, 1947 and 1948 respectively.
2. Total cases operated.
3. Total cases treated conservatively.
4. Mortality rate after operation for appendicitis.
5. Ratio of incidence of this disease in relation to total surgical admissions.

Several insurance companies were also requested to furnish information on the following points:—

1. Actuarial statement with regard to death rate due to appendicitis when compared with the total death rate for the years 1946, 1947 and 1948.

Three city corporations were addressed to furnish data on the following points:—

(*a*) Number of cases of deaths due to appendicitis in the years 1946, 1947 and 1948.

(*b*) Percentage of deaths in relation to total deaths.

While assessing the value of statistical reports supplied by different institutions the following observations may not be out of place for the help of clinical research in future. Some of the clinical institutions training graduates and post-graduates fail to respond when requests are made for statistical details. Either the statistical departments are under-staffed or the staff ill-qualified.

Universities are giving diplomas and degrees to graduates in statistics but such qualified degree or diploma holders are not usefully employed. Lack of efficient statistical departments is one of the greatest drawbacks in our country and the attention of the Indian Medical Council and the Government concerned should be drawn to the matter immediately.

Insurance companies also are no better fitted. Out of two notable insurance companies only one was able to give the information. Out of three city corporations, only one was able to furnish quickly the information asked for. One well-known insurance company stated, "we regret we are unable to do so as the statistics maintained by us do not lend themselves to extract particulars of deaths due to appendicitis and calculate the death rates attributable to that disease." This is a serious confession. If such information is available from English and American companies it is difficult to understand why Indian companies cannot supply it. The same criticism can be levelled against city corporations. One city corporation officer writes, "I regret to inform you that the deaths due to this cause are not separately enumerated but are lumped together with the deaths due to several other causes under the heading deaths due to other causes." One city corporation is discreetly silent in spite of reminders. The only corporation which has promptly replied is Bombay City Corporation which gives the following figures:—

Years	*Total mortality from all causes in the city of Bombay*	*No. of deaths due to appendicitis in the city of Bombay*	*Percentage of deaths due to appendicitis.*
1946 ..	41,264	21	0·05%
1947 ..	37,619	28	0·07%
1948 ..	37,765	35	0·09%

In Bombay City there are three clinical teaching hospitals, only the J.J. Group of hospitals has furnished the details.

The reply from one of the three major hospitals in Bombay reads as follows:—"With reference to your letter, I would be too glad to offer all facilities to you or your representative to collect the necessary information. Please let me know the date and time at least 15 days before, when the records would be kept ready for perusal." The inference that is likely to be drawn is that this hospital does not either prepare annual statistics or that the staff is too poor to cope with this work and this is one of the institutions recognised by the Indian Medical Council as a teaching institution. The other hospital has not even acknowledged letters, in spite of reminders.

The Empire of India Life Insurance Company has kindly furnished the following details:—

Year	Death Claims		Death claims resulting from appendicitis	
	No of Policies	Sum assured & bonus	No of Policies	Sum assured
1946 ..	746	14,43,953 8 0	1	1014
1947 ..	1034	21,29,334 11 0	..	..
1948 ..	810	16,20,406 4 0	..	..

This is very valuable information and shows the liability on insurance due to this disease is remarkably less than in other European countries like America and England. These statistics, however, are not sufficient to draw any firm conclusion. The drawback of non-adherence to nomenclature of diseases with regard to recording of deaths is a noticeable feature in some city corporations and insurance companies.

The following tabulated statement gives the incidence of this disease, the mortality rates and the ratio of incidence in relation to total surgical admissions in different hospitals. Attention is again drawn to the remarks of the Superintendent, General Hospital, Madras, which he sent in response to my second request for fuller details, "It is regretted that the information required under items 2, 3, 4 and 5 are not readily available. It will require a special staff and some time to go through all the case sheets for 3 years to get the information required by you which is not possible under the present circumstances." This is a confession of the existence of a serious defect and requires attention to help the future investigations of clinical problems.

Vizagapatam and Vellore are district headquarters with a population not more than 100,000 and have Medical Colleges, but the ratio of incidence of this disease to total surgical admissions is low. Calcutta, Bombay and Madras have an estimated population of 4 million, 3 million and 1·5 million populations respec-

STATISTICS OF APPENDICITIS CASES FROM VARIOUS HOSPITALS

Year	Total admitted	Total operated	Total treated conservatively	Mortality	Ratio in relation to total surgical admissions
Presidency General Hospital, Calcutta.					
1946 ..	156	156	Nil	0	11%
1947 ..	84	84	Nil	1·1%	5·2%
1948 ..	88	88	Nil	2·2%	5·8%
R. G. Kar Medical College Hospital, Calcutta.					
1946 ..	210	127	83	3·1%	
1947 ..	179	111	68	4·5%	10·1%
1948 ..	130	83	47	3·6%	6·9%
J. J. Group of Hospitals, Bombay.					
1946 ..	108	46	62	2·17%	2·3%
1947 ..	99	52	47	1·92%	1·75%
1948 ..	100	57	43	3·00%	1·58%
General Hospital, Madras.					
1946 ..	322	not available	not available	Deaths 8	not available
1947 ..	229	"	"	5	"
1948 ..	227	"	"	11	"
Stanley Hospital, Madras.					
1946-48 ..	233	118	115	5·1%	1·14%
Vellore Hospital, Madras.					
1946 ..	14	4	10	Nil*	1·1%
1947 ..	13	4	9	Nil	1·0%
1948 ..	25	16	9	Nil	1·4%

N.B.—Deaths from peritionitis which may very likely have been due to appendicitis would probably alter the mortality rate but cannot be proved.

Andhra Medical College Hospital, Madras.					
1946 ..	16	10	6	Nil	0·5%
1947 ..	19	12	7	16·6%	0·59%
1948 ..	16	9	7	11·1%	0·1%

tively. No definite inference can be drawn regarding the incidence of this disease as statistical data vary with institutions in the same city and therefore this does not lend itself to draw any authentic conclusion.

Errors and pitfalls in diagnosis with report of one case of appendicitis in a hernial sac causing obstructive symptoms.—A few cases which are not included in the tabulation are interesting and point a moral to avoid pitfall and errors in diagnosis.

1. A thin asthenic type of European female aged 5 years had an acute pain in her lower abdomen. Appendicitis was diagnosed and removed as an emergency, but pathological report of the appendix was not available. Two years later she had an acute pain again referred to the lower right side of the abdomen. She was operated as an emergency again by another surgeon who found adhesions on opening the abdomen and a prolapsed ovary. This was sacrificed. The symptoms became aggravated after the second operation. Colic, constipation with lump formation in right iliac fossa became a constant feature with exacerbation of symptoms resembling intestinal obstruction. One such case was seen by the senior author and it was thought advisable not to operate it as an emergency and so it was treated conservatively by giving fractional doses of morphia and by decompressing the stomach by Ryle's tube and the large bowels by a flatus tube in the rectum. This relieved the symptoms. In the interval an x-ray serial examination was done. It was found that there was obstruction in the small intestines. She was operated in the interval. On opening the abdomen interloop adhesions were found and one loop was bound down to cæcum. Adhesions of great mesentery from splenic flexure to right iliac fossa and also to the parietal peritoneum was noticed. Cæcum was found dilated and ballooned due to obstruction by a band formed by the omental adhesions. The omental mass was carefully mobilised and cut away between ligatures and the interloop adhesion were carefully mobilised. In one place there was a tear which was closed by Lembert sutures. The whole abdomen was plastered with 4 gms. of sterile sulphathiazole and 2 lakh units of pencillin in 5 c.c. of pyrogen-free distilled water was also instilled before closing the abdomen in layers without drainage. The patient was given penicillin parenterally after operation. The patient had post-operative distension for two days. Afterwards she made an uneventful recovery and now for the last two years she is able to work as a normal individual. It is quite possible that the first operation left some adhesions, which became more severe after the second, leading to intestinal obstruction. The role of streptocide and penicillin in the prevention of adhesions stands out in relief in this case as this woman is perfectly free from any symptoms for two years after operation. This is an illustration to show the effect of a possible inadvertent diagnosis and it also stresses the need, while doing abdominal surgery, especially emergency surgery of a perfectly developed technique as essential. The abdomen tolerates a lot of nonsense but suffers from later disabilities due to adhesions.

(2) Two unmarried women of asthenic type, school mistresses by profession, between the ages of 25 and 30 came with a ready-made diagnosis of appendicitis and sought advice for being operated upon. On careful examination, however, they were found to be of visceroptotic type. Even though there was segmented appendix with barium residue even in 72 hour x-ray picture, we hesitated to operate on them and advised them to keep physically fit by exercises and suitable diet. They thought otherwise and were operated upon elsewhere and for a few months felt happy but came again for similar disability in an exaggerated form. These are psychological problems. Walton A. J. has analysed his cases of visceroptotic type of individuals suffering from appendicular colics. In his analysis he has shown that with the exception of very few cases the majority have not benefited by appendicectomy.

(3) A Hindu male aged 25 years had an acute colic referred to in the right iliac fossa. He was diagnosed and operated upon for appendicitis as an emergency in the Simla Hills; but the colic again returned with redoubled fury. A stone snugly occupying the pelvis of the right kidney was found and he was advised pyelolithotomy.

(4) A Hindu male aged 22 years came for frequency of micturition. On examination he was found to be tender over the right renal angle. Urine contained pus cells and culture of bacillus coli was grown from urine. After treating him for a long time it was thought advisable to examine the kidney by pyelography. First excretion pyelography was done which did not throw any light on the condition of the kidney. Retrograde pyelography showed slight dilatation of the pelvis. He got pain after injection of 20 c.c. of sodium iodide. The right kidney was explored with a view to drain the pelvis of the kidney. On exploration, the kidney and pelvis were found to be normal and so the kidney was put back into position within the capsule and the abdominal wall was carefully sutured. He made a good recovery. In about 4 weeks' time he got another acute attack with increased frequency of micturition. On examination a lump was felt in the right iliac fossa. A possibility of apepndicitis causing ureteritis was diagnosed and so the abdomen was opened for appendicitis and it was found that the appendix was pelvic in type, adherent to the ureter at the pelvic brim. This was removed and ever since then the patient is happy. It took nearly 2 months for the kidney to return to normal.

(5) One well placed friend who had seen better days, now aged 76, is always fond of taunting the medical profession when hs narrates the story how he escaped being operated upon for appendicitis. He was admitted by a well known surgeon in Madras General Hospital into special wards for colic in the abdomen and dyspepsia when he was 50 years old. Suddenly one day he was told he was going to be operated upon as a case of appendicitis. He obtained his discharge immediately and ever since then he had no complaint. He got cancer of the tongue three years ago for which he underwent radium treatment and is still alive to narrate the story.

(6) Cases in the tropics are admitted with acute colic and pain in the right iliac fossa which initially are mistaken for appendicitis. They are due to acute lymphadenitis along iliac vessels due to filariasis. In such cases acute fever starts sometimes accompanied by rigor after a few hours of onset of acute pain and colic. Blood examination must be done for malaria and filaria in these cases.

A young boy aged 16 years, son of a professor in the Medical College complained of acute pain in the lower abdomen after a free motion. On examination he was found to be in agony with increasing pulse rate. He was immediately admitted into the hospital with a diagnosis of acute appendicitis. As he was being prepared for operation he shot up a temperature with rigor. In the meantime his blood smear was being examined and an absolute count was made. Leucocytosis was found but no malarial parasite was detected. This sudden rise of temperature aroused the suspicion of filarial infection when blood smear was negative for malarial parasite. A period of waiting of a few hours saved the patient from an abdominal operation. Ever since this instance cases were not operated till six hours have elapsed after the onset of pain.

(7) A European child aged 6 was admitted in a colleague's ward for acute pain round the umbilicus, when the surgeon was away on a short holiday. On examination the child appeared to be not so ill. There was the tenderness on the right iliac fossa, and the child had slightly higher fever in the evening. Blood smear showed lymphocytic increase and so the operation was delayed though against the dictum of quick operation in children once appendicitis is suspected. When the surgeon returned he opened the abdomen and found enlarged glands on the point of bursting, shut off from abdominal cavity by adhesions. One gland burst during the manipulation and pus showed tubercle bacilli in smear and culture. This patient had a stormy recovery and later was treated for tubercular glands in abdomen and responded to treatment well.

(8) A young man of 25 years consulted a reputed surgeon for acute pain in the lower abdomen. His appendix was removed but the pain persisted and became more severe. An x-ray revealed tuberculosis of the second and third lumbar vertebrae. He was subsequently treated for tuberculosis of the spine for a period of one year by immobilisation. He completely recovered.

(9) A case of right-sided big hernia was admitted in 1943 for obstructive symptoms. On opening the hernial sac the whole of the omentum, small bowels, and cæcum were found bound down with adhesions to the sac. On mobilising the omentum carefully it was found that an old perforated appendix was the cause of the trouble. The appendix was removed, the omentum excised and the bowels were returned with difficulty back into abdomen. A well-designed strengthening of the canal was done. It is unfortunate that no follow-up was possible.

(To be continued)

THE PROBLEM OF PEPTIC ULCER

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There is no agreement as yet regarding the exact cause of peptic ulcer, but observers generally agree regarding certain factors in the ætiology of this disease. Hurst is of opinion that hypersthenic gastric diathesis with tendency to hyperchlorhydria which is often inherited, when associated with some other factors may lead to ulceration. Hyperacidity is practically a constant accompaniment of peptic ulcer in its early stage, although it may disappear in old chronic ulcers. But a healthy stomach never digests itself. In fact, there are experimental evidences that living healthy tissue resists digestion. So if local autodigestion be the causative factor in the production of the ulceration of the gastric or doudenal mucous membrane, then hypersecretion of the gastric juice in these cases must be associated with other causes which will lower the resistance of the mucous membrane, at least locally, and thereby make it vulnerable to the corrosive action of the acid gastric juice. Insufficient sleep, insufficient and irregular dieting, long fasting hours, exhaustion from physical and mental overstrain, and toxæmia of chronic infective conditions not only lower the general vitality, but also have marked deleterious influence on the functional activities of the digestive organs including the stomach and the duodenum. Importance of mental anxiety as a factor in the production of duodenal ulcer, either a new attack or a recurrence in the healed case, has been pointed out by many observers. In this connection it may be mentioned that Cushing has shown that excessive parasympathetic impulses originating in the hypothalamic region may produce vascular spasm and consequent ischæmic necrosis in the local areas in the gastric and duodenal mucous membrane. Haematogenous subinfection with streptococcus non-hæmolyticus from oral and nasopharyngeal septic foci has also been mentioned as a cause, but it is difficult to assess its value.

From what has been discussed above it may be presumed that with the increase of stress and strain and struggle for existence in the life of major portion of the members of a community the number of peptic ulcer cases in that community would also show an increase. But at the same time one should remember that reactions of the human system or of the community life are not predictable with mathematical accuracy. It is a well known fact that stress and strain in the daily life of a large section of the people are gradually increasing since the conclusion of the last great war and for a number of people it is becoming almost unbearable. Over and above that, this part of the country has been affected by communal disturbance which has been the cause of additional distress for many persons since 1946. Under the circumstances it is profitable to study the effect of these abnormal strains on the human system in its various aspects.

The present paper only deals with the number and percentage of peptic ulcer cases admitted for treatment into a small medical unit, *i.e.*, the medical ward of the Chittaranjan Hospital during the years 1947, 1948 and 1949. Diagnosis was mainly clinical as radiological examinations had not been possible in the majority of the patients. Symptomatology had been typical. Characteristic colicky pain on fasting, or two to three hours after meals, referred to upper abdomen, and relieved by food in the early period of the disease with some variations were present in most of the cases. All the patients gave history of symptoms and signs of the disease of several months' duration. Some were relapse cases. Fractional test meal examinations were done in many cases. All showed excess of free hydrochloric acid in post-meal samples and also in resting juice. Occult blood test in the stool was positive in the few cases where it was examined.

TABLE I—SHOWING THE INCIDENCE OF PEPTIC ULCER

Year	*Total admission in the medical ward*	*Total number of peptic ulcer cases*	*Percentage of peptic ulcer cases admitted*
1947	428	5	1·1 approx.
1948	491	13	2·6 approx.
1949	535	32	6 approx.

DISCUSSION

The above table records the total number of admissions into the medical ward year by year, and also total number of peptic ulcer cases amongst them, and the percentage of the peptic ulcer cases in relation to the total admission. In 1947 the percentage was 1·1; in 1948—2·6; in 1949—6. It is true that the diagnosis was not confirmed by x-ray examinations and also the number of cases every year was too small to be of any great significance. But they may be taken as a pointer for a wider nationwide study, especially in bigger clinics.

TREATMENT

Routine Sippy treatment with modifications in individual cases according to necessity were adopted in all the cases. But it was found that addition of sedatives especially of the phenobarbitone group hastened the relief of symptoms. All the cases were discharged from the hospital clinically cured.

CONCLUSION

Increased mental strain and long continued mental anxiety have important rôle in the ætiology of the peptic ulcers. Since the conclusion of the last great war stress and strain in the daily life of a large section of the people are gradually increasing from year to year. This is likely to affect the general health, and be manifested in the increased production of various ailments including peptic ulcer. Admission of peptic ulcer patients into the Chittaranjan Hospital shows a gradual increase from year to year since 1947. Taking into consideration the importance of mental state in these cases phenobarbitonum was given to some patients especially with manifestations of nervous irritability along with routine Sippy treatment, and it was found to hasten the relief of symptoms.

INTESTINAL OBSTRUCTION* DUE TO VOLVULUS OF SMALL INTESTINE

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The necessity and importance of discussing a subject like intestinal obstruction lie in the fact that early diagnosis in such cases reduces the mortality by the institution of early operative interference al ng with proper after-care and treatment of secondary effects of obstruction and lethal factors responsible for death. It has been customary to attribute the high mortality of obstruction to late diagnosis and as such timely diagnosis can only be made when we are alive to the realisation of the most important signs and symptoms of intestinal obstruction which are pain and stoppage of flatus and faeces and do not wait for the development of distension, complete coprostasis and faecal vomiting. Errors in our conception of the essential pathology and morbidity are also responsible for the bad results for mere mechanical relief of obstruction does not help without making up the deficiencies of the electrolytes of the blood and dehydration.

It was the observation of Hartwell and Hognet indicating that the lives of the dogs with high intestinal obstruction could be prolonged with the subcutaneous administration of saline solution which intensified the interest of experimental workers in the problem of bowel obstruction. Failure of saline solution to afford relief in cases with ileal obstruction brought to light the importance of mechanical effects of distension upon bowel wall. There is a direct relationship between the increase of intra-enteric tension, viability to organisms and noxious agents from its lumen. Amussat's theory of absorption of abnormal toxins of toxic proteoses and amino acids from the bowel lumen also adds to the critical state of the patient and cannot be ignored.

It has been found that with the increasing appreciation of the important part played by the distension of the bowel and with the development of satisfactory methods to control it there has been a great reduction in the mortality of the disease. Mckittrick and Sarris (1940) recorded their results in bowel obstruction in the Massachusetts General Hospital and found a considerable reduction in the mortality of acute intestinal obstruction. A number of investigators like Gamble, McGrecer and Ross showed that the chemical alterations in the blood *viz.*, elevation of non-protein nitrogen, decrease in blood chlorides and an increased carbon dioxide combining power of the blood, were due to loss of fluid and electrolytes from the stomach and upper part of the bowel. Loss of sodium and chloride ions which were essential to life was the lethal factor and not the absorption of a noxious toxin.

In low obstruction these chemical alterations in the blood do not usually occur because the amount of electrolytes and fluid loss is less. The liberal use of saline does not have such a good effect in these cases

* Read at the U.P. Provincial Medical Conference, Fyzabad.

as when it is administered in high obstructions and the same holds good for cases of strangulations.

Effect of Distension as Noted in Low Gut Obstruction

The contents of an obstructed bowel consists of fluid and gas; the longer the duration of the obstruction, the greater is the fluid content, while in acute obstruction the gas predominates.

The degree up to which fluid accumulations contribute to distension depends upon the site and degree of obstruction. In high obstruction the intestinal fluids are lost readily and distension of bowel is less marked while the loss of fluid by vomiting in colonic obstructions is negligible.

During fluid loss by vomiting the fluid is drawn from the plasma which becomes concentrated. The fluid of the blood is replaced from the interstitial or intercellular fluid, the loss of which is an index of dehydration. The intracellular fluid is not disturbed and is largely spared.

The sodium is the principal cation of both plasma and interstitial fluid while potassium is that of cell fluid. Chloride is the main electrolyte of plasma and interstitial fluid while phosphate is the principal anion of cell fluid. The interstitial fluid differs from the plasma only in its low protein content.

The effect of the loss of fluid in obstructions at the various sites in the intestinal tract is as follows:

In high obstructions chloride loss predominates and alkalosis is the result and due to dehydration oliguria occurs with nitrogen retention and high blood urea. In duodenal and jejunal obstructions the loss of bile and pancreatic juice withdraws sodium and chloride ions equally and except for the presence of dehydration alkalosis is absent. In diarrhoea attending obstruction of the lower ileum and colon, base loss predominates with resultant acidosis.

The hyperpotassæmia occuring in obstructions is not considered of importance as used to be thought, while some workers have even reported a fall of blood potassium. Wangenstein does not believe that increase of blood potassium is in any way lethal in intestinal obstruction.

There are three sources of gas in the obstructed gut:

1. Gas as a result of digestive process. 2. Diffusion of blood gases into the intestinal lumen. 3. Passage of swallowed air into the intestine. Mcgrecer states that decomposition of intestinal contents is the most important source of gaseous distension.

It has been stated that the negative intrathoracic pressure is responsible for the swallowing of air and is connected with respiration.

There are essentially two varieties of intestinal obstruction:—

(1) Simple obstruction—acute and acute on chronic.

(2) Strangulating obstruction when the blood supply of bowel is also interfered with. Here the damage to the bowel wall occurs more quickly than in simple obstruction.

In colonic obstruction the vomiting is absent as there is no gastric retention and all the ileal contents are allowed to enter the colon without any regurgitation due to the presence of iliocaecal valve. The result is that distension is very much marked which embarrasses respiration and heart action through pressure upon the diaphragm. The high intraluminal pressure produces effects upon its blood supply and absorption from and permeability of the bowel wall.

The ileocaecal sphincter and valve converts a simple obstruction of the colon into a closed loop obstruction. The terminal ileum is not distended because of the check valve mechanism of the lips of ileocaecal valve and sphincter. The caecum gets very much distended and may perforate. The local end-effects attending sustained intraluminal pressure in long loops in the presence of simple obstruction are as follows:—increase of fluid and gas, increased motor activity of bowel, distension and intestinal stasis, thinning of intestinal wall, increase of intraluminal pressure, decreased absorption from the lumen, nervous stasis in the bowel wall, anoxaemia, impaired viability, histologic evidence of local injury, increased permeability, migration of noxious substances through the damaged bowel wall and toxaemia from transperitoneal absorption.

In strangulation of bowel wall the factors of blood loss and surgical shock predominate, particularly where venous obstruction is present. Pure arterial obstruction occurs in arterial thrombosis and embolism. In the latter condition, there is threatened loss of viability of the gut, abnormal permeability and transperitoneal absorption of toxic material.

Probable Lethal Factor in Obstruction

Besides the loss of fluid and electrolytes which are of serious consequences in high obstruction the chief effects of obstruction are mechanical which give rise to increase in intra-luminal pressure as related to absorption and viability of the gut. Though dyes and bacteria are absorbed from the obstructed gut through the lymphatic channels, they have been recovered from and demonstrated in the mesenteric lymph nodes in the absence of obstruction. Every available evidence points to diminution of mesenteric venous absorption with increased intra-enteric pressure. It

has been observed that so long as the peritoneal coat of the bowel is intact and the bowel is viable, in high grade simple obstructions of the small intestine and colon, transperitoneal absorption does not occur, and the patient remains in good condition.

This has been definitely determined by experiments on dogs etc., that the chief lethal factor in simple obstruction is permeation by bacteria and toxins of the gut wall where viability has become impaired by vascular damage. In strangulation too this is one of the lethal factors besides loss of blood and condition of shock.

Thus it comes to reason that the rationale of therapy should be reduction of intraenteric pressure by decompression or release of obstruction agent before the viability of the bowel is impaired. Wangenstein believes more in the bad effects brought about by the mechanical block and distension than by toxic absorption in intestinal obstruction.

Signs and Symptoms

Simple obstruction consists of simple interruption of the lumen of the bowel.

(*a*) Causes:—

(1) In the lumen—faeces, gall stones and foreign bodies.

(2) In the wall—neoplasms and stenosis..

(3) Extrinsic causes—adhesions, bands and pressure of tumours.

(4) Intussusception.

(*b*) Types:—

(1) High small gut.

(2) Low small gut.

(3) Large gut.

High small gut obstruction—This is characterised by profuse vomiting and loss of fluid, dehydration, alkalosis, loss of fluid of blood plasma, sharp, colicky abdominal pain. Dehydration is shown by dry sunken eyes, thirst, hoarse voice, scanty urine.

Changes in blood:—1. Fall in blood chlorides; 2. Increase in carbon dioxide combining power; 3. Alkalosis; 4. Rise in plasma proteins (7 to 11); 5. Rise in blood urea; 6. Rise in total non-protein nitrogen.

Low Small gut obstruction—site—distal ileum.

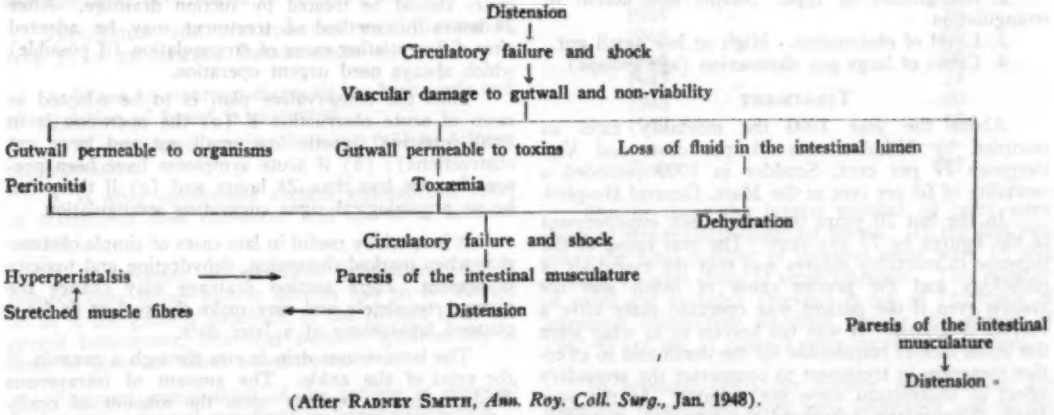
Causes:—

(1) Adhesions—inflammatory or congenital bands.

(2) Obstructed inguinal hernia.

(3) Impaction of gall-stones.

The general condition of the patient remains good and stationary for a long time and such was the picture in all small gut volvulus cases and then, all of a sudden the condition gets worse. The pathological effects are those due to distension of the bowel which is progressive and in a vicious circle as shown:



(After Radney Smith, *Ann. Roy. Coll. Surg.*, Jan. 1948).

Here the relief of obstruction alone is insufficient to restore normal intestinal function and the aim should be to do suction drainage to remove liquid and gas and decompress the proximal intestine in order to break the vicious circle.

Vomiting and dehydration are not the marked features and death is due to infection, dehydration, and haemorrhage. Recent view of the causes of death in addition to those described above are distension of the bowel wall, pull on the mesentery, stretching and compression of nerves and nervous shock. This shock is also caused and increased by dehydration, toxaemia and peritonitis as shown above.

Large gut obstruction—Here the obstruction of the chronic type, seldom permanent and complete and colon has a property to adapt itself to stasis. The acute obstruction, dehydration and blood changes are never permanent. As there is no strangulation of

small bowel contents, until in very late stages when ileocaecal sphincter becomes incompetent, vomiting is rarely present. Colon distends progressively and caecum becomes enormous in size and there is the true picture of closed loop obstruction.

Closed loop obstruction—The term is self explanatory. The loop becomes distended with fluid and gaseous contents entrapped in the segment of the gut. Distension leads to impaired circulation, ulceration, infection, gangrene, rupture, peritonitis and death. Mostly strangulation is the cause of closed loop obstruction.

Bowel obstruction with strangulation—It is a serious condition and its effects are just the same whether it is small gut or large gut obstruction. As already described death results from the damage of bowel wall, infection and peritonitis. Loss of blood and circulatory failure also play their part.

Diagnosis

Diagnosis involves the consideration of the following points:

1. Discovery of the presence of intestinal obstruction by its main symptoms, *i.e.* pain, vomiting and constipation which is absolute. The latter is confirmed by a two enema test. Signs which should be seen are:—Visible peristalsis with colicky pain and distension of indjvidual coils. Palpation of an irreducible lump at the sites of hernial orifices or inside the abdomen. Borborygmi heard on auscultation.

X-ray examinations—It shows the degree and extent of distension, *i.e.*, gaseous mirrors over fluid levels.

2. Recognition of type. Simple obstruction or strangulation.

3. Level of obstruction. High or low small gut.

4. Cause of large gut obstruction (age groups).

Treatment

About the year 1900 the mortality rates as recorded by Mikulicz was 51 per cent, and Von Bergman 77 per cent, Scudder in 1909 recorded a mortality of 60 per cent at the Mass. General Hospital.

In the last 20 years there has been improvement in the figures by 75 per cent. The real cause of the increase in mortality figures was that the essentials of pathology and the precise cause of death was not known even if the patient was operated early after a correct diagnosis. It was not known as to what were the lethal factors responsible for the death and so effective measures in treatment to counteract the secondary effect of obstruction were not possible. In the year 1930, Wangenstein advocated the adoption of suction drainage to combat the vicious cycle of distension which brought about a fall in mortality rate.

Now the fatality rates of 10 to 15 per cent are being reported. Other factors responsible for reducing the mortality rates are:—

1. Improved methods in diagnosis.

2. Improved methods of combating shock and dehydration by intravenous therapy, improved methods of anaesthesia, use of local anaesthesia and the use of curare and myanesin.

3. The realisation that peritonitis is the real danger even in the absence of gangrene and perforation, advances in general and intraperitoneal chemotherapy, avoidance of peritoneal soiling, if the gut is per force opened at operation and development of aseptic technique of resection and anastomosis.

Conservative plan—It consists of intestinal suction drainage and intravenous therapy. Intestinal suction drainage may be accomplished either with Levine or Ryle's tube or with Miller-Abbot tube.

This is a conservative plan of treatment which is a great advance in the treatment of acute intestinal obstruction. It is to be adopted in cases of functional obstruction. It should never be used in cases of strangulations which require urgent operation. There may be some improvement by decompression in these cases but it is marked by the danger of gangrene and perforation which may supervene in strangulating obstruction.

There is no sign or symptom or any x-ray or laboratory investigation which can differentiate simple occlusion from strangulation.

So no case of acute obstruction if seen within 24 hours should be treated by suction drainage. After 24 hours this method of treatment may be adopted after differentiating cases of strangulation (if possible) which always need urgent operation.

Thus the conservative plan is to be adopted in cases of acute obstruction if (*a*) the operation is in small intestine (mostly low small gut and large gut obstructions); (*b*) if acute symptoms have been present for not less than 24 hours and (*c*) if there can be no physiological signs suggesting strangulation.

It is specially useful in late cases of simple obstruction when marked distension, dehydration and toxicity is present. Here suction drainage may change the picture completely and may make the patient fit for a planned laparotomy at a later date.

The intravenous drip is run through a cannula in the veins of the ankle. The amount of intravenous fluid necessary depends upon the amount of orally taken fluids which is retained. A fluid balance chart (shown below) should always be kept along with the fluid output.

1	2	3	4	5	6	7
Date	Oral fluid taken.	Fluid removed by suction	Oral saline (2 minus 3)	I.V. fluid	Total fluid	Fluid output Urine volume and Sp. Gr.

Oral saline in column 4 is important and shows as to how much fluid is being taken by mouth and retained.

The conservative plan of treatment is to be given up when the signs and symptoms of strangulation are setting in.

Morphine is only to be administered if the cause of obstruction is definitely known or suspected to be simple occlusion of the bowel by the length of the history, combined with absence of any signs and symptoms suggesting strangulation.

A therapeutic dose of ¼ grain of morphine may be given and it is not likely to be repeated. We usually refrain from giving any morphine before operation. Oxygen by B.L.B. mask is very useful in cases with gross distension specially in the presence of shock.

X-RAY CONTROL—Presence of gas in the colon during conservative treatment indicates relief of obstruction.

PREVENTION OR CONTROL OF PROTEIN DEFICIENCY—One pint of plasma per day during any prolonged period of suction drainage and intravenous saline is essential to prevent any plasma protein depletion which leads to breakdown of water balance with oedema and delayed wound healing. The administration of saline is regulated after the determination of blood chloride level.

In America they are administering protein digests and artificial mixtures of amino acids which experimentally have been found to be more effective.

INDICATION FOR ABANDONING THE CONSERVATIVE PLAN IN SIMPLE OBSERVATION—

1. When an incorrect diagnosis has been made and strangulation of bowel is suspected.

2. If continuous suction drainage fails to achieve decompression.

3. If after continuous suction spontaneous relief of obstruction does not occur and operation becomes essential.

4. If attempts at intestinal intubation and in failure—here either gastric suction has to be carried on or if the general condition of the patient does not permit laparotomy, intestinal suction; gastrostomy is done in place of blind enterostomy.

Frequent examination of the patient is essential during the regime of treatment by conservative plan.

Operative Treatment—It deals with the cause of obstruction on opening the abdomen. A preoperative gastric suction is necessary before anaesthesia is given. An hour's preparation by suction and intravenous drip is helpful in a toxic dehydrated patient with distension, even in the cases of strangulation. Routine examination and recording of the pulse and blood pressure give us a general idea regarding the surgical risk of a case. The suction drainage and intravenous drip is continued on during the operation and even afterwards. In the postoperative period the conservative plan as described is carried on till the patient begins to pass flatus or has the first bowel movement. Many of my cases had diarrhoea during the post-operative period which is due to the congestion of the released bowel. Here it becomes all the more essential to replace the fluids by intravenous saline and plasma if necessary. Morphine 1/6 grain 6-hourly is used more frequently during the post-operative period and suction is discontinued when the oral balance begins to show a progressive rise to 80 per cent of the oral intake and there is no bile drawn by suction. X-ray also begins to show gas shadows in the large gut and there is no dilatation or fluid levels in the small gut. Post-operative suction drainage prevents the distension to occur and it ensures that there is no tension on the suture line.

John Devin stressed the fact that the gastric dilatation initiated by stasis in the upper digestive tract caused peristaltic inhibition while gastric decompression restored intestinal activity. Suction of stomach by Ryle's tube is quite sufficient to combat paralytic ileus unless the latter was present before the operation when Miller Abbot's tube is used. The latter replaces the Ryle's tube should signs of postoperative ileus appear inspite of its uses.

ANALYSIS OF CASES OBSERVED

The total number of cases admitted to the S. N. Hospital during the last five years is as follows:—

1944	56
1945	66
1946	66
1947	54
1948	80
1949	65
Total	387

Out of these the largest number of cases were those of strangulated inguinal hernia. In the last two years the total number of volvulus cases were 15 and of these 11 were those of small intestine. This number of small gut volvulus (eleven) is out of 145 cases of intestinal obstruction admitted during the period of 1947-49; of the 11 cases 5 were cured by operation.

In previous years the routine laparotomies for intestinal obstruction were very infrequent and so the actual cause of the disease could not be ascertained.

My practice is to advise laparotomy as a routine in all cases of acute intestinal obstruction after a short preoperative treatment unless the case is moribund and the blood pressure is very low or the diagnosis appears to be acute on chronic obstruction when conservative treatment is usually successful. In the latter type of cases the patients improve on repeated enema and

gastric aspiration but sometimes caecostomy or colostomy has to be resorted to and complete relief by conservative treatment fails.

If the cases are referred to us early and operation done on the very first or second day these cases of volvulus of small intestine will all get well and the mortality will not be high.

In our series of 11 cases practically all of them were operated after the 3rd day. The signs of obstruction, specially complete stoppage of flatus and distension are not very much marked and thus there is always the allurement of conservative measure before operation is decided upon. It would be safer to do laparotomy as soon as the diagnosis of acute obstruction is made or even if there is doubt there will not be any harm in looking in and closing the abdomen after rectifying the volvulus.

The distension in the large gut volvulus is marked and the sigmoid loop has been seen to be of the size of a motor tube. These cases too when operated late have developed uraemia and death if gangrene of the gut has failed to occur.

REPORTS OF CASES OF VOLVULUS OF SMALL INTESTINE

Case 1—Babulal, aged 30, Hindu male.

Acute constipation and vomiting for 3 days, whole abdomen was rigid and tender, total W.B.C. count 6400, poly 74 per cent, lympho 20 per cent.

Operation—On laparotomy volvulus of small intestine with gangrene was found. Resection of small bowel with end to end anastomosis was done. Patient died.

Case 2—Shyam Lal, aged 30, Hindu male.

Pain in abdomen and constipation. Pain was of colicky nature. Laparotomy revealed volvulus of small intestine which was untwisted. Patient was cured.

Case 3—Hira Lal, aged 38, Hindu male.

Pain in abdomen for 7 days, no faeces and flatus for 8 days. Pain started in right iliac fossa and then spread all over the abdomen. Laparotomy revealed ilio-ileal intussception and volvulus of small intestine. Resection anastomosis was done. Patient died.

Case 4—Azim Bix, aged 58, Muslim male.

Pain in abdomen and constipation 6 days, vomiting for 4 days. On operation volvulus of small intestine was found. Patient died.

Case 5—Shyam Lal, aged 30 Hindu male.

Pain in abdomen and constipation for 1 day. Laparotomy revealed volvulus of small intestine which was untwisted. Patient was cured.

Case 6—Azim Uddin, aged 50, Muslim male.

Pain in abdomen and constipation 2 days; abdomen was distended. Laparotomy revealed volvulus of small intestine with multiple haemorrhagic patches in small intestine and mesentery. Untwisting was done. Patient was cured.

Case 7—Lachman, aged 20, Hindu male.

Pain in abdomen with constipation for 1 day. On laparotomy volvulus of small intestine with adhesions of the ileum to the ascending colon was found. Untwisting of the volvulus and separation of adhesions were done. Patient was cured.

Case 8—Mitho, aged 25, Hindu male.

Absolute constipation and distension of abdomen for 4 days with repeated vomiting. Operation revealed volvulus of small intestine with gangrene. Resection of 3 ft. of small intestine was done with ileotransverse colostomy. Patient was cured.

Case 9—Babu Singh, aged 40, Hindu male.

Pain and constipation for 6 days. Distension and visible peristalsis were present. On laparotomy volvulus of small intestine was untwisted. Patient died after 24 hours.

Case 10—Bhajan Lal, aged 23, Hindu male.

Pain and acute constipation for 1 day. On operation volvulus of small intestine was found which was untwisted. Patient died after a day.

Case 11—Vijai, aged 26, Hindu male.

Pain and acute constipation for 3 days. On laparotomy volvulus of small intestine was found which was reduced. Patient died.

Out of 11 cases of volvulus 5 were cured and rest died.

Resection of the bowel and anastomosis of this bowel was done in three cases out of which one recovered.

The mortality figures can only be improved by an early operation before distension effects of strangulation of the bowel set in.

Mere untwisting of the gut and post-operative management of distended bowels by suction and intravenous measure is enough, provided laparotomy is resorted to at an early stage.

EPIDEMIOLOGICAL OBSERVATION ON TUBERCULOSIS IN JULLUNDUR CITY

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Jullundur, East Punjab.

Tuberculosis is a national problem now. To handle such a disease of varied signs and symptoms, a good basic knowledge of its epidemiological factors is essential. These epidemiological observations have been made by various authors in different parts of the country. In our country these have varied to a greater extent in the different parts. The causes for these variations are the different climatic conditions of the areas, varied urbanization and industrialization of the places, different standards of living, dietetic conditions, education and social customs of the people. I have summarized these facts from my experience and record of my cases in Jullundur City during my practice in this field of medical science for the last 10 years.

Jullundur City, at present is one of the big cities in the East Punjab with a population of about 2·5 lacs. It is about 900 ft. above sea level. It is an educational centre, centre for sports goods and other factories dealing with iron and steel products.

In this paper I have put forward the result of my observation on 4321 cases of tuberculosis examined by me from (*a*) January 1940 to January 1942 and (*b*) from July 1943 to June 1949.

Out of this total of 4,321 cases 3,385 were pulmonary and 936 were non-pulmonary cases.

Cases from urban areas—2,324 (53·8%).

Cases from rural areas—1,215 (28·1%).

Cases from semi-rural areas—782 (18·1%).

(Rural areas were those with population of less than 2,000; semi-rural areas were those with population of between 2,000 and 5,000; and urban areas were those with population of over 5,000). Cases from the urban areas were nearly equal to the sum total of cases from rural and semi-rural areas, so I could get a clear picture of all those mixed cases.

SEX:

Male: Before partition—1,682 cases; after partition—383 cases; total—2,065 cases (47·8%).

Female: Before partition—1,862 cases; after partition—394 cases; total—2,256 cases (52·2%).

This shows that the incidence of the disease is slightly higher in females than in males, may be due to early mental and physical strain by early marriage, motherhood and some social customs like pardah etc.

TABLE I—SHOWING DISTRIBUTION OF CASES ACCORDING TO AGE AND SEX

Age in yrs.	*Male*	*Female*	*Total*	*Percentage*
Under 5 yrs. ..	29	24	53	(1·2%)
From 6 to 10 yrs.	120	172	292	(6·8%)
From 11 to 20 yrs.	427	675	1,102	(25·5%)
From 21 to 30 yrs.	688	872	1,560	(36·1%)
From 31 to 40 yrs.	404	281	685	(15·8%)
From 41 to 50 yrs.	218	151	369	(8·6%)
From 51 to 60 yrs.	115	55	170	(3·9%)
Over 60 yrs. ..	64	26	90	(2·1%)

It shows that the incidence is more in the age group of 21—30, being the age of marriage and child bearing in females and of hard labor and independent start of life in males.

RELIGION:

TABLE II—SHOWING THE DISTRIBUTION OF CASES ACCORDING TO RELIGION

	(*a*)	(*b*)	*Total*	*Percentage*
Hindus	1,491	457	1,948	(45·1%)
Muslims	1,921	—	1,921	(44·4%)
Others	112	340	452	(10·5%)

(*a*)=cases in the days of United Punjab and (*b*)=cases in East Punjab.

Before partition the incidence of tuberculosis was slightly higher in Muslims than in Hindus and others, but this is not definite because Hindus have a better living, so they can afford to go to other private practitioners and avoid the free services of the clinic.

TABLE III—SHOWING DISTRIBUTION OF CASES ACCORDING TO AGE AND RELIGION

	HINDUS				MUSLIMS				OTHERS		
Age in yrs.	(*a*)	*Percentage*	(*b*)	*Total*	(*a*)	*Percentage*	(*a*)	*Percentage*	(*b*)	*Total*
Under 5 years ..	23	(1·5%)	7	20	19	(1·0%)	1	(1·0%)	3	4
From 6 to 10 yrs. ..	88	(5·9%)	27	115	140	(7·3%)	11	(10·8%)	26	37
„ 11 „ 20 „ ..	334	(22·4%)	122	456	523	(27·2%)	17	(16·6%)	106	123
„ 21 „ 30 „ ..	561	(37·6%)	174	735	665	(34·6%)	46	(45·1%)	114	160
„ 31 „ 40 „ ..	227	(15·2%)	80	307	305	(15·9%)	13	(12·8%)	60	73
„ 41 „ 50 „ ..	167	(11·2%)	30	197	140	(7·3%)	12	(11·8%)	20	32
„ 51 „ 60 „ ..	57	(3·8%)	14	71	77	(4·0%)	2	(1·9%)	10	12
Over 60 years ..	34	(2·5%)	3	37	52	(2·7%)	—	—	1	1

(*a*) indicates cases before partition and (*b*) indicates cases after partition.

Percentage of cases in various age-groups is nearly the same in Muslims and Hindus, but in age-groups 21—30, it is higher in others because of the fact that others include many labourers with limited means.

TABLE IV—SHOWING THE DISTRIBUTION OF CASES ACCORDING TO SEX AND AGE

Age in years	(a) Males	(a) Females	(b) Males	(b) Females
Under 5 yrs.	4	3	2	1
6—10 „	10	17	14	12
11—20 „	60	62	44	62
21—30 „	83	91	52	62
31—40 „	30	20	33	27
41—50 „	14	16	12	8
51—60 „	9	5	6	4
Over 60 „	—	3	—	1

(a) gives cases in the United Punjab and (b) cases in the East Punjab.

Practically this shows no difference in the proportion of male and female cases in 2 different periods of investigation.

OCCUPATION:

TABLE V—SHOWING THE DISTRIBUTION OF CASES ACCORDING TO OCCUPATION AND THE AREAS FROM WHERE THE CASES CAME IN

Occupation	Urban	Rural	Semi-rural	Total	Percentage
1. Students ..	78	29	30	137	(3·2%)
2. Teachers ..	28	8	9	45	(1·1%)
3. Assistants & Clerks ..	108	44	48	200	(4·6%)
4. Lawyers ..	10	2	1	13	(0·3%)
5. Medical men ..	7	3	4	14	(0·3%)
6. Businessmen ..	165	93	62	320	(7·4%)
7. Artisans & Mechanics ..	216	114	49	379	(8·8%)
8. Cultivators ..	37	137	35	209	(4·8%)
9. Menials ..	68	38	15	121	(2·8%)
10. Policemen ..	15	14	5	34	(0·8%)
11. Labourers ..	130	66	35	231	(5·3%)
12. Household ..	260	113	113	486	(11·2%)
13. Housewives ..	781	400	245	1,426	(33·0%)
14. Children ..	300	78	83	461	(10·7%)
15. Unemployed ..	121	76	48	245	(5·7%)

The table shows the maximum incidence in housewives *i.e.*, 33%, and least in lawyers and medical men who usually are the members of higher society, better fed and of better resources with better standard of living and better educated. Again the reason of highest incidence in housewives is the strain of early marriage and repeated pregnancies with poor diet and low economic level, sedentary habits and living in ill-ventilated and overcrowded places while men go out for work. In our country poorer the patients, greater the number of children they have.

HISTORY OF CONTACT: Total number of cases who gave this history of contact was 1343 *i.e.*, 31·5%. Out of this 686 gave the history of close contact (say patient was living in the same house, same room and was usually a blood relation) and 657 gave the history of remote contact, who were not regular visitors to the patients and who could not be included in the category of close contacts.

Pulmonary tuberculosis incidence was nearly three times the total incidence of non-pulmonary tuberculosis.

TYPE OF DISEASE:

TABLE VI—SHOWING THE DISTRIBUTION OF THE TYPES OF THE DISEASE

Types	No. of Cases
Pulmonary tuberculosis	3,385 (78·3%)
Abdominal tuberculosis	399 (9·2%)
Glandular tuberculosis	346 (8·0%)
Pleural involvement	103 (2·4%)
Bone and joint tuberculosis ..	58 (1·3%)
Other organs involvement ..	30 (0·9%)

COMPLICATIONS:

TABLE VII—SHOWING THE INCIDENCE OF COMPLICATIONS IN PULMONARY CASES

Complications	No. of Cases
Abdominal	251 (53%)
Glandular	83 (17·6%)
Laryngeal	36 (7·6%)
Bones and Joints	21 (4·1%)
Fistula *in ano*	3 (0·6%)
Genito-urinary	4 (0·8%)
Pleural	72 (15·2%)
Meningeal	3 (0·6%)
Total	473

Out of 3,385 cases of pulmonary tuberculosis, 473 cases were with additional complications *i.e.* 13·9% of the pulmonary T.B. cases had one complication or the other.

INITIAL SYMPTOM:

TABLE VIII—SHOWING THE INITIAL SYMPTOM THAT THE PATIENT OF PULMONARY TUBERCULOSIS HAD

Symptoms	No. of Cases
Fever	1,682 (49·7%)
Cough, with or without expectoration ..	808 (23·9%)
Hæmoptysis	486 (14·4%)
Coryza or bad cold	195 (5·8%)
Pain in chest	58 (1·7%)
Weakness, loss of weight, fatigue and malaise	79 (2·4%)
Dyspepsia and abdominal discomfort ..	36 (1·1%)
Diarrhœa	18 (0·5%)
Hoarseness of voice	9 (0·3%)
Palpitation	6 (0·2%)
Breathlessness on slight exertion ..	4 (0·1%)
Neurasthenia	4 (0·1%)

The symptoms were entered according to the statement of the patients and from this it appears that the commonest first symptom is fever in nearly half the cases, then comes the cough which presents as an initial symptom and is present in 23·9% of the cases. Hæmoptysis as an initial symptom was present in 14·4% of cases.

TABLE IX—SHOWING THE DURATION OF THE DISEASE AT THE TIME OF THE FIRST EXAMINATION OF THE PATIENT

Under one month	109	(3·2%)
After one month	203	(5·9%)
After two months	476	(14·1%)
After three months	298	(8·8%)
After four months	617	(18·2%)
After six months	536	(16·4%)
After eight months	183	(5·0%)
After ten months	181	(5·0%)
After one year	602	(17·8%)
After two years	160	(4·7%)

DURATION OF DISEASE WHEN FIRST EXAMINED: Patients usually try to hide the disease and minimise its duration, but the figures are according to their statements. Maximum percentage of cases comes for examination four to six months after first symptom is noticed by the patient, then come the cases with over one year's duration, least are the cases with one month's duration. All this is due to lack of education, lack of propaganda and other social evils and customs prevailing in the country *e.g.* trying domestic remedies, then consulting their religious gurus (*pandit, pir, giani, sadhu*) for a pretty long period. Then they go to Hakims and Vaids and lastly they come to doctors in advanced stages after a very long time. Public education in this line is very meagre especially in rural areas, urban people have some respect for the severity and the seriousness of the disease. Semi-rural people are semi-conscious to this disease, but still we require greater efforts to educate the public.

STAGE OF THE DISEASE: Analysis of pulmonary tuberculosis cases on x-ray examination.

TABLE X—SHOWING CLASSIFICATION OF PULMONARY TUBERCULOSIS CASES ACCORDING TO THE STAGES

Stage	*No. of Cases*	*Percentage*
I	717	21·5
II	1,303	38·5
III	1,365	40·3

The classification was based on the Report of Sub-committee on Classification of Pulmonary Tuberculosis by the Tuberculosis Association of India and it very nearly corresponds to the American classification of minimal lesion, moderately advanced lesion and far advanced lesion.

The reasons for the poor number of stage I cases are lack of education. The public are not tuberculosis-minded—they see doctors when they are tired of the domestic remedies and the treatment of Hakims and Vaids. Failure of the early diagnosis of the disease by non-tuberculosis workers is also a cause to be attributed to this result to a certain extent.

TABLE XI—SHOWING THE INCIDENCE OF THE TYPE OF LESION

Exudative	524	15·4	
Mixed but predominantly exudative	1,651	48·7	64·1
Mixed but predominantly productive	932	27·5	
Productive	240	7·09	34·5
Fibrotic	78	2·3	

TYPE OF LESION: The percentage of exudative lesion and mixed but predominantly exudative lesion was 64·1, while for productive and predominantly productive lesion percentage was 34·5 while fibrotic lesions were only 2·3%. This shows that majority of cases come in acute stages specially people from rural area have exudative type of lesion as they are less frequently exposed to tubercular infection. But now the conditions have changed to a greater extent, due to better communications between rural and urban areas, greater trend towards urbanization and influx of village people in neighbouring towns and cities for work in factories and offices etc. and thus a little margin of difference is left between the village and town dwellers.

INCIDENCE OF CAVITATION: Out of the total cases, cavitation was seen in 60·7% and soft-walled cavities were seen in 74·1%. This suggests the seriousness of the disease existing in this area.

TABLE XII—SHOWING THE INCIDENCE OF CAVITATION

			Total	
(*a*) *i* Cases with one cavity ..	1,136			
ii Cases with two cavities ..	606			
iii Cases with more than two cavities	314		2,056	(60·7%)
(*b*) Cases without cavity			1,329	(39·2%)
Soft-walled cavities			1,525	(74·1%)
Moderately hard-walled cavities			531	(25·8%)

SITES OF LESION IN THE LUNG:

TABLE XIII—SHOWING DISTRIBUTION OF LESIONS ACCORDING TO LOBES IN MALES AND FEMALES SEPARATELY

Involvement	*Males*		*Females*	
Right lobe	357	(22·0%)	336	(20·7%)
Left lobe	189	(11·4%)	583	(32·9%)
Bilateral with equally distributed lesion	462	(28·5%)	189	(10·5%)
Bilateral with lesion more extensive on right ..	462	(28·5%)	241	(14·9%)
Bilateral with lesion more extensive on left ..	146	(9·0%)	336	(20·7%)
Total lesion on the right side	1,819	(70·9%)	630	(39·8%)
Total lesion on the left side	336	(29·0%)	949	(60·1%)

Out of all the male cases, unilateral lesions were present in 33·4% and 66·6% of the lesions were bilateral. In females unilateral lesions were 53·6% while bilateral were present in 46·4%. In males right-sided lesions were seen in 1819 *i.e.*, 70·9% and left-sided were in 336 *i.e.*, 29%. In females incidence was greater for left-sided lesion *i.e.*, 60·1% against 39·8% for the right-sided lesions; even bilateral lesions with more extensive lesions on the left side, were greater in females *i.e.*, 20·7% but bilateral cases with lesions more extensive on the right side were greater in males *i.e.* 28·5%.

This shows that left-sided lesions are more common in females while right-sided ones are more common in males.

Practitioners' Corner

ELEMENTARY FACTS ABOUT STRABISMUS

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M.B.B.S. (MAD.), D.O. (OXON.), D.O.M.S. (ENG.),

Amraoti

In simple language I would define squint or strabismus as the deviation of the axis of one eye from the object gazed at. If the cornea of the deviating eye is comparatively near the inner canthus, it is a case of convergent squint and if near the outer canthus, it is a case of divergent squint.

Before proceeding further, we should understand certain fundamental facts regarding binocular vision. Binocular vision is the act of using both eyes as one single unit. The images formed on the two retinæ are not identical, but they are fused mentally and visualised as one, and the third dimension of solidity or thickness is also perceived. Fixing an object with both the eyes, or binocular fixation is not achieved till an infant is about six months old and full binocular vision not till about six years. Squinters have either no binocular vision or in rare instances a very imperfect one. There are certain essential conditions for binocular vision:—

(1) The eyes should be so constructed as to receive clear and almost similar images on the two retinae.

(2) The retinae must be functionally perfect.

(3) The extra-ocular muscles should have a balanced action so as to keep the eye-balls 'trained' like the twin guns on a ship, as the gaze roves over various objects in the field of vision.

(4) The visual pathways and higher central nervous mechanism should help to fuse the images of the two eyes into one. This is known as fusion faculty. Some people even go so far as to describe a fusion centre in the brain.

When there is any obstacle in any of these four factors, there is disturbance in binocular vision and one eye tends to wander away from true alignment. These obstacles are classified by Chavasse and modified by Lyle and Jackson mainly as sensory obstacles, motor obstacles and central obstacle. Paralytic squints are caused by motor obstacles.

There is yet another quite different factor concerned with binocular vision and that is the mutual relationship between accommodation and convergence. When the eyes are gazing into the distance, they are at rest and clear images of the distanct object are found on the two retinae, as in a cheap box camera. Now then if the gaze is turned to view a near object the visual axes of the two eyes have to be turned inwards towards the object to get the full benefit of binocular vision. The eyes are said to converge.

At the same time, to get a clear image of this near object the lens of the eye increases its refractive power by the contraction of the ciliary muscles. The eyes are said to accommodate. The amount of accommodation necessary to focus a near object and the amount of convergence needed to get the visual axes of the two eyes on to the object are very closely and intimately related. When due to some error of refraction this relationship is upset, the squint may develop. For instance, in hypermetropia or longsight, clear images of distant objects tend to form some distance behind the retina when the eyes are at rest. To get a clear image of these objects on the retina, the eyes have to use their power of accommodation, thus increasing the refractive power of the lens. They have to use accommodation to view distant objects where convergence is not needed. This upsets their relationship and severe eye strain follows. If the patient is to maintain the normal accommodation convergence ratio, he is either to accommodate less or not at all when he would have blurred vision, or else converge more than it is necessary in which case he would see two clear images. The patient prefers clear vision and avoids double vision by suppressing the image of one eye which turns in, and results in a convergent squint. This very attractive theory conceived by Donders is definitely not the whole truth. If it were so, all unconnected errors of refractions should have ended in squints. But the converse is more often true in that, a vast majority of convergent squints are accommodational in nature and due to an uncorrected hypermetropic error.

Clinically, the following types of strabismus are met with:—

1. Apparent squints:—(*a*) due to large angle gamma; (*b*) epicanthus.

2 Real squints:—(*a*) concomitant; convergent or divergent, (unilateral or alternating); (*b*) paralytic or paretic.

The angle gamma is simply the angle between the apparent direction of the eye and the real direction. The apparent direction is given by the anatomical axis and the real direction by the visual axis. The visual axis of the eye usually passes through the cornea slightly to the nasal side of its centre. If this condition is exaggerated, the eyes will appear divergent. In rare cases when the visual axis passes through the temporal side of the centre of the cornea, the angle gamma is said to be negative, and an apparent convergent squint results. These cases can easily be recognised by the cover test to be described later They need no treatment.

The other class of apparent squints is due to epicanthus—a fold of skin running in a vertical direction in the region of the inner angle of the eye. This

sometimes completely overlaps and hides the caruncle giving appearance of convergent squint. It is, we know a common trait of the Mongolian races. In others the condition is due to a "Snub" nose where the upper part of the bridge of the nose is not well developed. Non-Mongolian children usually grow out of it. If however the conditions should persist, there are various types of plastic operations described, to correct them.

Now we come to the most important and common subdivision of squints—the concomitant variety. It is essentially a disease which starts in infancy or early childhood. Here the visual axes, though abnormally directed, retain their abnormal relation to each other in all movements of the eyes. There are also a number of different types of concomitant squint.

(1) The squint may be periodic *i.e.* appearing only occasionally, or be constant. The former is of better prognosis.

(2) It may be unilateral or alternating. In the latter the visual acuity in the two eyes is equal and squint may appear in either eye.

(3) It may be convergent or divergent.

In the unilateral variety, the vision in the squinting eye is almost always very much below that of the good eye. In a few of these some evident sensory obstacle such as corneal leucoma, unilateral cataract, disease or abnormality of the retina etc. may be seen. It may be noted here that a blind eye ultimately diverges.

But the majority of concomitant squints are accommodational in nature. It is also almost certain that in many of them central obstacles such as deficient fusion faculty, play a part. Some types of alternating squints can never achieve binocular vision even after adequate training. They are experts at suppression and when one eye fixes, the image of the other squinting eye is readily suppressed. Since they can fix with either eye and keep both of them in use, the visions in the two eyes are equal and usually good. In a unilateral variety on the other hand, suppression is practised only in one eye, all the time. The vision gradually deteriorates in that eye till in longstanding untreated cases, the squinting eye becomes practically blind. This type of amblyopia developing in an unused eye is termed amblyopia exanopsia.

The treatment of concomitant squints consists of mainly three subdivisions:—

(1) Optical methods *i.e.* prescribing glasses.

(2) Orthoptics or exercises to educate binocular vision.

The ultimate goal of treatment is in all the cases to get normal binocular vision.

In favourable early cases the prescription of glasses alone may cure the squint. If even after correcting the errors of refraction the squint persists, the good or the fixing eye is occluded to force the squinting eye to work. This usually brings up the acuity of vision in young patients and may convert unilateral squints into the alternating variety. And then the patient is ready for orthoptic exercises which may cure the squint. If optical methods and orthoptic exercises fail to cure the squint surgical operations to correct the deformity are carried out. These are followed by orthoptic exercises and may result in complete cure.

There are many cases where we cannot get full functional cure and have to be satisfied with only good cosmetic results. These include (*a*) all patients in whom the vision of the squinting eye cannot be approximated to that of the good eye, and (*b*) most cases of alternating squints.

Group (*a*) consists of all longstanding cases and most of the cases with cataract, leucoma, fundus diseases etc. Group (*b*) also comes in this category, because in most of them, fusion faculty is deficient and hence binocular vision cannot be attained.

There are a few important points to be noted in connection with concomitant squints.

(1) The vast majority of the concomitant squints are accommodational in nature and can be cured by glasses alone, provided the patient is examined early.

(2) The later the onset of concomitant squint the better the prognosis.

(3) Squints above 20° usually require surgical treatment and mostly for cosmetic purposes only.

(4) Squints in adults usually require surgical treatment and mostly for cosmetic purposes only.

(5) Squint in infants below 6 months usually disappear after that age. There is very imperfect binocular fixation before that period and the two eyes sometimes wander independent of each other. This is second variety of squint the child may grow out of, the first being epicanthus.

A few words about orthoptics will not be out of place here. Orthoptics is the science of training binocular vision by various exercises conducted with the help of special instruments. There are some forms of stereoscope essentially based on Worth's amblyoscope and have arrangements for projecting different pictures from different angles into the two eyes. The patients most amenable to this treatment are those in the age group 6-13 years with vision not less than 6/12 in either eye. The younger children do not cooperate, and in older children the results are rarely satisfactory. Orthoptic treatment alone cannot correct any squint above 20°. The whole thing is treated as a game and the pictures used are interesting from the children's point of view. As we do not have any qualified orthoptists in our country, our treatment of squints resolves into (1) curing the very early favourable cases with glasses, (2) improving an amblyopic eye by occlusion and then putting the eyes straight by means of surgery, and (3) in hopeless cases giving cosmetic cure only by surgery, (4) there are also a limited number of eye exercises which need no special instruments and which may be useful in a few easily amenable cases.

Of course, curing the early cases is ideal and like all ideals is rarely met with. Here I cannot do better than requote Chavasse from Lyle and Jackson's book on orthoptics, "It seems highly probable that if glasses were given to an infant immediately and as a matter of extreme urgency at the first momentary glide of the eye, the problem of accommodational squint, both in its visual and aesthetic aspects would disappear. Operations would not be necessary. Multitudes of eyes would be saved for acute vision against possible loss by accident or disease of their fellows and a heavy financial burden would then be lifted from the community."

We then come to the next big group of squints which is due to an evident paralysis or paresis of a muscle or group of muscles controlling the movement of the eyes. The patient who was enjoying good binocular vision suddenly finds that one of his eyes is not moving symmetrically with the other one, resulting not only in a squint but also in the distressing symptom of diplopia. The diplopia is most marked when the patient tries to look in the direction of action of the paralysed muscle. Besides the squint and diplopia, the next important sign is the posture of the head which is such that the paralysed muscle is seldom called into play. This is to try and avoid diplopia as far as possible. For instance in a case of paralysis of the right external rectus the patient keeps his head turned slightly to the right.

There is a bewildering array of causes of these ocular palsies listed in text books, classified in the usual manner as congenital abnormalities, trauma, inflammation, neoplasms, toxins, vascular causes etc. Another method of classification starts with the muscles and traces up the various affection to the nuclei in the brain. All these classifications and subclassifications may be a regular nightmare to an examinee. But for us syphilis heads the list with haemorrhages, aneurysms, other meningeal inflammations, etc., as very weak followers. In many cases, however, the cause is unknown.

As for their treatment the obvious thing to do is to find out the cause and then root it out—a thing more easily said than done. If there is no improvement with medical treatment, surgical operations sometimes help. Prescribing suitable prisms occasionally relieves diplopia. In hopeless cases the distressing diplopia can only be avoided by keeping the offending eye covered.

Diagnosis

I have purposely kept the diagnosis to the last hoping thereby to impress upon you the simplicity of it. The patient is best examined in a semi-darkened room. When a person gazes at a light, a bright image of it known as the corneal reflex is formed on the cornea. In normal eyes these corneal reflexes are almost in the centre of the cornea or pupil. (Actually they are in most people very slightly to the nasal side of it). If there is an evident discrepancy in the position of the corneal reflexes in the two eyes, the eye with the corneal reflex in the centre of the pupil is the fixing eye and the other the squinting eye. In convergent squint the corneal reflex is relatively far too much on the lateral side of the centre of the pupil.

Diagnosis of the presence of paralytic squint is easy, the patient having diplopia, deficient movement of one eye in a certain direction, and occasionally, a peculiar posture of the head. But detecting the diseased eye can sometimes be very difficult.

In concomitant squint, the movements of the eyes are full and, as said before, the relative position of the two eyes is the same in all directions. Of course, it is very easy to pronounce a squint when the angle is large. The difficulty comes in among cases with a small angle. A simple test to detect these is known as the cover test. The patient is asked to look at a light held about half a metre away from him. The corneal reflexes are then observed and either with the hand or a small card the apparent good eye is covered and fixing the light. If the other eye has been squinting it has now got to assume a correct position and fix the light. This causes a movement in that eye which can be readily observed. If the eye jerks outwards it is a case of convergent squint and if inwards a divergent squint. If there is no such movement, that eye is not squinting. The same test can be repeated with the other eye. This test also should be repeated when the eyes are looking into the distance. For some periodic squinters may show their defect only when they look at a near object and others when they look into the distance. Cover test can straightaway weed out apparent squints caused by large angle gamma or epicanthus.

Cover test is also used to find out if a squint is unilateral or alternating. As said above when the fixing eye is covered the squinting eye takes up fixation. If now the cover is removed the eyes swing back to their old position in unilateral squint and remain as they are in alternating squints with the fixation now taken up by the originally squinting eye.

Illustrative Case Reports

The following are a few typical cases from my collection:

Case 1 (Fig. 1)—A boy aged about 7 years brought to me by his mother who thought that the boy squinted occasionally. On keen inspection it can be seen, that the epicanthal fold of skin in the left eye simulating a left convergent squint. This, and the cover test proved that it was a case of apparent squint due to epicanthus. The mother was reassured that the child would grow out of it.

Case 2 (Fig. 2)—Girl aged 3 years is an instance of an early case apparently cured by glasses. She was brought to me within one month of the onset of the squint. The onset was preceded by an attack of malaria. She was a case of right concomitant convergent squint (about 15°). She took a correction of plus 5·0 in the right eye and plus 4·0 in the left.

FIG. 1

FIG. 2

FIG. 3A

FIG. 3B

FIG. 3C

FIG. 4A

FIG. 4B

FIG. 1—Showing epicanthus with the epicanthal fold of skin in the left eye giving an appearance of a convergent squint especially when the patient looks to his right.
FIG. 2—Showing an early case 'cured' by glasses. It was a case of right convergent squint.
FIG. 3A—Showing a case of right convergent concomitant squint. Though rather difficult to decide from the photograph, actually it is the left eye which is fixing and the right eye is squinting. The photograph is not well posed.
FIG. 3B—Showing a very slight improvement in the same patient as in FIG. 3A when the patient wears glasses. Again it is the left eye which is fixing.
FIG. 3C—Showing the same patient in FIG. 3A with the left eye occluded and the right eye now fixing and forced to work.
FIG. 4A—Showing convergent concomitant squint (alternating type) with fixation by the left eye and the right eye squinting.
FIG. 4B—Showing the same patient as in FIG. 4A with fixation by the right eye and the left eye squinting.

FIG. 5A

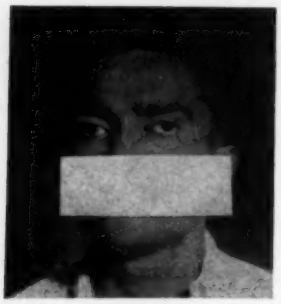

FIG. 5B

FIG. 6

FIG. 7A

FIG. 7B

FIG. 5A—Showing intermittent left concomitant divergent squint. The fixation is by the right eye and the left eye is diverging. This case had no error of refraction.

FIG. 5B—Showing the eyes of the same patient as in FIG. 5A which are practically straight. Some simple convergence exercises helped to maintain this posture at will and for greater part of the day.

FIG. 6—Showing an example of a diverging blind eye. The right eye has been practically blind since some years and is shown diverging. Cause of the blindness is retinitis pigmentosa. The vision of the left eye is also poor with restricted visual fields—but much better than the right.

FIG. 7A—Showing a case of paralysis of the left external rectus with the patient looking to his right. The eyes appear normal and the patient has normal vision.

FIG. 7B—Showing the same patient as in FIG. 7A trying to look to his left and revealing the inability of the left eye to go into the corner. The eyes show a squint and see double.

Glasses put her eyes straight. Unfortunately I had not got her photograph taken when she first came to me.

Case 3 (Figs. 3A, 3B and 3C)—Boy aged about 4 years with 20° of right convergent concomitant squint (duration 1 year). Correction needed was right plus 4·0 and left plus 3·5. Glasses reduced the squint by a very slight degree as can be seen in Figs. 3B and 3C which show the left eye with one type of occluder. The aim is to try and make it an alternating squint and then operate.

Case 4 (Figs. 4A and 4B) shows the pathetic case of a boy of about 13 years with alternating convergent concomitant squint about 45°. In Fig. 4B one can see him fixing with his right eye and in Fig. 4A with his left. Correction needed was right plus 4·5, and left plus 3·5. Vision in each eye was 6/12 without glasses and 6/9 with glasses. The onset of squint was in infancy. He is waiting for operation for cosmetic cure only.

Case 5 (Figs. 5A and 5B)—A case of left concomitant divergent squint intermittent in nature which was definitely helped by certain convergence exercises. In Fig. 5B he looks practically straight. Now he is able to maintain this normal position of his eyes, for a greater part of the day.

Case 6 (Fig. 6)—It is an instance of diverging blind eye. The patients is suffering from retinitis pigmentosa and practically blind in the right eye.

Case 7 (Figs. 7A and 7B)—A case of paralysis of the left lateral rectus. Note the squint as the patient looks to his left and its absence as he looks to the right. This patient was thoroughly investigated in a teaching hospital in Bombay and the aetiology was undecided. His only trouble is diplopia on looking to the left and even that he has learnt to ignore.

Conclusion

Surgery in squints is easy though highly technical in nature. All patients over 13 years can be operated upon under surface and local anaesthesia. The classification of squints into concomitant and paralytic varieties is in itself artificial and not really justified because the two types often overlap. Many concomitant squints appearing in infancy are said to originate as paresis of certain muscles. For instance alternating convergent strabismus appearing in infancy are said to be due to slight paresis of both lateral recti. On the other hand, in longstanding concomitant squints secondary organic changes take place in the muscles causing slight paresis in some and hypertrophy in others. The whole treatment of the subject is very incomplete.

I claim nothing original in this paper and my only excuse for presenting it is to create an interest in the minds of general practitioners. I also take this opportunity for appealing to the public and the Government about the urgent necessity of opening squint clinics in our major hospitals.

CASE NOTES

A CASE OF PNEUMOCOCCAL MENINGITIS SUCCESSFULLY TREATED

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Panchu, Hindu, Male, aged 15 years was admitted on 16-4-1950 with history of 3 days' fever, severe headache, irritability and loose stools.

The onset was sudden with chill and rigor.

Nothing significant was elicited in the past history or family history.

On examination—The patient was well-built and fairly nourished. He was restless and irritable, not responding to questions but responding to painful stimuli. There was no cyanosis, no jaundice, no glandular enlargement. The temparature was 102·6° F (axillary); pulse—100 per minute, regular; respiration—56 per minute. B.P.—130/75 m.m. of Hg. There was no mark of injury on the head. Right upper eyelid showed œdema. Both eyes showed conjunctival injection. Pupils unequal, right pupil being widely dilated, both reacting sluggishly to light; no paralysis of external ocular muscles was apparent. Neck was charge from ears. No signs of paralysis in the limbs. Tendon jerks all sluggish. Abdominal reflex and plantar reflex—absent. Bladder was distended and there was overflow incontinence.

Lungs—There was evidence of consolidation in the upper part of the right lung. Heart sounds were normal. Abdomen was soft; the liver was not palpable, but the spleen was palpable, 2 fingers below the costal margin.

Ophthalmoscopic examination showed marked congestion of retinal veins in both eyes.

Blood count: Total W.B.C.—17,200 per c.mm. Poly—84 per cent., lympho—12 per cent., mono.—4 per cent., eosino—nil. No malaria parasites. A. T. and C.T.—both negative. Blood Kahn's test—negative. Urine contained a trace of albumin, but no other abnormal constituents. Lumbar puncture revealed turbid greenish fluid under very high tension. The fluid coagulated promptly. A smear examination under microscope revealed plenty of gram-positive capsulated diplococci and pus cells. The organisms on culture proved to be pneumococcus.

Treatment

Specific—Penicillin (crystalline) injection was started immediately—100,000 units stat and 50,000 units every 3 hours by intramuscular route and was continued until the temperature and patient's condition improved sufficiently. A total of 55 hundred thousand units was given.

Penicillin was also given intrathecally—10,000 units daily.

Sulphadiazine—Sulphadiazine sodium was given intravenously, 2 gm. at first and then 1 gm. every 6 hours for the first 48 hours. Later sulphadiazine tablets were given crushed in milk through a Ryle's tube—2 tablets four hourly. After 6 days, sulphadiazine had to be stopped as the total leucocyte count dropped to 4200 c.mm. but was started again after a week when total count rose to 10,000 per c.mm. and was continued for about 10 days.

Supportive and symptomatic treatment—The patient being unconscious, fluids and milk were given through a Ryle's tube as continuous intragastric drip until the patient recovered sufficiently to take his feeds by mouth (1-5-50).

To avoid repeated catheterisation of the distended bladder, suprapubic cystostomy was done by Ritchie's technique and the bladder was drained through a self-retaining catheter until the bladder function returned to normal (1-5-50).

Intravenous glucose, oxygen inhalation, circulatory stimulants etc., were given as and when necessary.

Progress—Patient remained comatose for about 3 days. From the fifth day he responded to questions by physical movements but "meningeal cry" appeared and continued for several days. Slight degree of proptosis was noted in both eyes and lids showed œdema, which gradually subsided. Eye movements were restricted. Temperature varied between 100°F to 103·6°F (axilla) and gradually came down by lysis and reached normal after 20 days. Patient's mental condition gradually cleared and he started taking feeds from 1-5-1950. But a left-sided facial paralysis (lower motor neurone type) and flaccid paralysis of the right upper limb were noticed. He could not talk and appeared to be deaf. Membrana tympani appeared to be normal on examination. Jerks were all sluggish and plantar response, absent on admission, became normal.

The C. S. F. gradually cleared and pus cells disappeared and culture became sterile on and from the 3rd day. Skiagram of the skull and sinuses taken on 8-5-50 did not show any abnormality.

On 15-5-50 he was much improved but still appeared to be deaf. Responded to signs and could talk well. Complained of headache. Facial paralysis was much improved but the right arm was still paralysed. C.S.F. was normal. Fundus oculi normal.

After another 15 days on 1-6-50, he was walking without support and was talking intelligently with good memory. Sleeping well. No headache. Vision normal. Hearing good. No facial paralysis. Slight weakness in the right arm persisted. Jerks normal. Lungs no abnormality. Spleen palpable 2 fingers.

He was discharged on 20-6-50.

SUMMARY

(1) A case of pneumococcal meningitis complicating right apical lobar pneumonia has been described.

(2) The patient was successfully treated with penicillin, both intramuscular and intrathecal, and sulphadiazine, by mouth and by intravenous route, and adequate supportive treatment—especially continuous intragastric drip feed to maintain proper nutrition and fluid intake.

(3) Transient facial paralysis, deafness and right upper monoplegia developed but complete recovery ensued.

Acknowledgment—I am grateful to Dr. K. Bhaduri Chief Medical Officer and to Dr. P. K. Chatterjee, M.R.C.P. (LOND.), Honorary Visiting Physician for their guidance and permission to publish this report.

A CASE OF INTUSSUSCEPTION

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History—Mrs. J. aged 40 years was admitted to the hospital on 6-6-1950 with the following complaints:

(*a*) Intermittent attacks of pain of colicky nature in the right iliac region—5 days, each attack lasting for a few hours and there being less pain during the interval.

(*b*) Fever—temperature was normal in the morning but went up to 101·0°F in the evening.

(*c*) Constipation—but there was no mucus or blood in the stools and no signs of obstruction.

Examination of patient—The patient was a thin-built adult female, anæmic, pale and anxious looking. She had slight rise of temperature 99·0°F and rapid pulse, 110 per minute.

Abdomen was soft on palpation. There was a tender mass in the right side of abdomen 4½"×2" in the right iliac fossa. The margins were not well-defined and it was not fixed to the anterior or posterior abdominal wall.

Rectal and vaginal examinations did not reveal any abnormality, except tenderness in the appendicular region.

Laboratory Findings—

Total W. B. C.—4,300 per c.mm.

Polymorphs—53 per cent., lymphocytes—34 per cent., large mono—4 per cent., eosino—9 per cent.

Urine and stool revealed nothing abnormal.

Treatment—The patient was put in Fowler's position and nothing was given by mouth. Injection of penicillin 100,000 units on admission and 50,000 units were given 4-hourly with a total of 10 lac units. Cibazol tablets were given with glucose intravenously. As the inflammatory condition subsided the operation was advised. She was still getting attacks of pain though for shorter duration and at longer intervals. As she did not want to undergo operation she left the hospital on 11-6-1950.

She was again admitted on 19-6-1950 for operation of the mass in her abdomen. After pre-operative preparations she was operated upon by the Civil Surgeon on 22-6-1950 under general anæsthesia.

Operation Notes—Right paramedian incision was made and abdomen opened. On examination of abdominal viscera a soft mass was detected in the region of the cæcum. On further examination it was revealed that this swelling was nothing but ileocæcal intussusception. Last portion of ileum was invaginated into the cæcum along with appendix which had become adherent there.

The intussusceptum was slowly and gently taken out of intussuscepiens. The appexdix which was still inflamed was taken out. The raw surface on the cæcum was covered with omentum. The viscera were kept in position and the wound closed as usual.

The patient had an uneventful recovery. The wound healed by first intention and the patient was discharged cured on 9-7-1950. She had no complaint at the time of discharge.

The point of interest in this case is that though she had intussusception for a long time, she had no signs of intestinal obstruction.

Acknowledgment—My thanks are due to Dr. C. P. Tandon, Civil Surgeon, Faizabad, who operated upon this case and permitted me to publish this report.

A CASE OF TETANUS

P. K. LAHIRI, L.M.F.,
Senior A. M. O, Dalgaon T. E., Dooars

A Hindu male aged 50 years came to Hospital on 18-3-1950, for the treatment of an injury on his external ear and lock-jaw.

This injury was sustained about a fortnight back. The patient never reported himself previously for treatment of his wound or prophylactic serum injection.

He was given sulphanilamide tablets to swallow but he started spasms of muscles of the face (lock-jaw) and other parts of the body and could swallow medicine with great difficulty.

The case was diagnosed as tetanus as he had trismus, opisthotonos, risus sardonicus and also other classical signs and symptoms. The possibilities of hydrophobia, strychnine poisoning and meningitis were excluded by suitable examinations.

Treatment—Immediately after admission, the external wound was suitably dressed. Tetanus antitoxin 50,000 units was given intravenously and 50,000 units intramuscularly; bromides with chloral hydras mixture by mouth and sulphadiazine 2 tablets 3 times a day, were given.

Patient had no temperature for the first 2 days. The spasms were less in intensity and frequency but still persisted.

On 21-3-1950 the temperature rose upto 102·0°F, intensity of spasms and their frequency and lock-jaw were increased. Antitoxic serum 60,000 units was again given intrathecally and glucose solution intravenously B.D. as well.

On 22-3-1950 spasms and their frequency were less and the temperature came down to normal and remained so for 4 days.

From 24-3-1950 penicillin 100,000 units each was given intramuscularly daily for 7 days to hasten recovery and watch its effect on tetanus.

All the signs and symptoms of tetanus persisted, though to a milder degree, inspite of tetanus antitoxin and penicillin continuing for 7 days.

On 28-3-1950 to our surprise, the temperature again rose to 103·0°F., while penicillin injections were being continued and remained so for 6 days with fluctuation of temperature by about 2 degrees during 24 hours. During this period penicillin had no effect on the temperature.

The blood, stool and urine were examined but no abnormality was detected.

On 2-4-1950 quinine bihydrochlor 10 grs. was injected intramuscularly on 2 consecutive days and glucose solution intravenously B.D. was given. Temperature began to fall and on 4-4-1950 it was normal and the toxæmia, lock-jaw and spasms also disappeared. The patient then made a gradual but uneventful recovery. Iron tonic with quinine and cod-liver oil were continued for 4 weeks to hasten recovery. The case was discharged from the hospital on 23-4-1950 as fully cured.

Conclusion

Partial improvement of a case of tetanus when treated with tetanus antitoxin and penicillin is described. The case later responded well to injections of quinine with complete disappearance of all signs and symptoms. Opinion of the profession is invited on this matter.

Acknowledgment—My thanks are due to Dr. N. G. Moitra, our Medical Officer, for encouragement and affording all facilities for publication of the case.

JOURNAL OF THE
INDIAN MEDICAL ASSOCIATION

CALCUTTA, NOVEMBER, 1950

LEPROSY CONTROL IN WEST BENGAL

Medical knowledge of leprosy is no longer based on theology or philosophy. It has become an integral part of preventive medicine. In bringing about this happy integration and valuable addition to the world pool of medical knowledge the contribution of India has been none too insignificant. But in the matter of social application of knowledge so pooled, we, in India, despite the examples of Norway, Hawaii and Philippine Islands in recent times, are lagging far behind. It is urgent that we begin a determined effort to overtake this lag. The urgency is all the greater because of the excessive overcrowding and still further lowering of the prevailing near-starvation living standard of our people consequent on the unprecedented migration into our State of millions of uprooted human beings from Pakistan preceding and following the Ulsterisation of our dear land as freedom-price, thereby increasing the liability of further spread of the already widespread disease in near as well as distant future as never before, and the intensity of which can only be determined in the next few decades.

Scientific knowledge of leprosy has advanced sufficiently to give the doctors the means necessary for the preventive medicine and the entire field is one so important that every attempt to interest all the various groups of the profession should be made. There is no gainsaying the fact that not until the private medical practitioners and the doctors in charge of general hospitals and dispensaries willingly undertake to treat leprosy patients as they treat typhoid, tuberculosis, diseases much more infective than leprosy, will any substantial progress be made. An age-long problem such as leprosy demands the attention and skill of the best qualified in the profession. The time is not far distant when a doctor, who does not have a clear picture of the implications of leprosy and an understanding of its diagnosis and treatment, will drop behind. Leprosy has throughout the centuries thrown a brutal challenge to the civilisation in India which the medical profession of today and tomorrow must face up to.

In the history of the study of leprosy the most outstanding event was the discovery of M. leprae in 1872. Since then hundreds of attempts have been made to cultivate the bacilli but to date none of these has successfully met the Koch's requirements of proof, and all attempted inoculation of animals with the bacilli have been unsuccessful to the same extent; no leprologist in more than 145 recorded cases has been able to infect himself or other volunteers by attempted inoculation of the bacilli. While these two major handicaps have hampered the study of leprosy and provided grounds for controversy on the rather simple explanation of the acquirement of the disease and retarded preparation of a prophylactic vaccine, and which yet remain to be solved by organised research, very substantial progress has been made by careful clinical observation and judicious apprisal of epidemiological data enabling us to gain a far truer conception of the nature of the disease, of the factors involved in the fight between the tissues and the invading bacilli and of the factors influencing the prevalence and spread of the disease in a community.

Despite the technical failure to grow the bacillus *in vitro* and inability to produce progressive lesions *in vivo* the leprologists are practically unanimous as shown by the findings of the various International and National Conferences except that of the much condemned Indian Commission Report of 1890, that leprosy is caused by the presence in the body of Hansen's bacillus, a lowly acid-fast pathogen, and that it is feebly communicable. Studies of leprosy in families as well as in children homes in leprosy institutions have clearly demonstrated that leprosy is not hereditary and that in many ways it resembles tuberculosis. Both are house and childhood diseases, thriving under conditions of overcrowding; but leprosy, unlike tuberculosis, is acquired through direct bodily contact and, like tuberculosis, is influenced by massive infection, intensity and duration of exposure, and, what is most important, the age of the persons exposed. In other words, the younger the person infected, the more massive the infection, and closer or more frequent the contact, the greater is the risk that leprosy will not only extend but will develop into a more serious lepromatous form. Or, inversely, as age increases, the risk grows less and less, though perhaps no age is entirely exempt from infection. The only other factor which appears of direct importance is the race of the persons exposed. Anglo-Indians, Europeans, Americans and Mongolians are found to be more susceptible to leprosy than Africans and Indians are. Generally, adults are relatively more immune than children, as shown by the fact that the adults exposed to infection (*e.g.*, the wife of an infective husband and *vice versa*) develop the disease in not more than 5 to 10 per cent of the cases, whereas in the cases of children similarly exposed, the average infection rate is over 50 per cent. What is more, in adults casual contact does rarely, if at all, transmit the disease. An appreciation of these facts robs leprosy of much of its fear-complex.

Leprosy has many peculiarities which distinguish it from all other diseases. Among the peculiarities of the disease are its low toxicity, its long latent period, its insidious onset and long duration. The only other human disease which bears some resemblance to leprosy is tuberculosis. They resemble each other in morphology of their bacilli and in the manifestation of certain lesions of the skin, but leprosy shows even more striking contrast in attacking the peripheral and cutaneous nerves, and leaving lungs, intestine and central nervous system unaffected. But perhaps the most important phenomenon is the delayed tissue reaction

to lepra bacilli which is effective enough in limiting infection in some cases but not in others, thus dividing leprosy into two contrasting types, neural and lepromatous.

The problem of leprosy, therefore, consists of two well-defined aspects: (1) Prevention, amelioration and rehabilitation of the patients who have that form of neural leprosy which mutilates and in which the body has reacted favourably to the disease but left signs of the battle in the form of deformities, ulcers and scars. In this type, 70 per cent or more of the problem is from the technical point of view, one of orthopedy and physiotherapy and, from the community point of view, one of social assistance to re-absorb him into useful employment. But these aspects of the problem have as yet remained almost completely untouched and the profession as well as the Government will do well to take a serious note of this fact. (2) Curative remedies and control measures very largely apply to lepromatous cases. This group of patients did not respond well enough to the hydnocarpus treatment. Recently, some significant developments have taken place in this field. During the last few years, and particularly in the last 4 years in India, a group of chemotherapeutic drugs, *viz.*, sulphone, not intolerably toxic in therapeutic doses, and capable of being given continuously for many months, have been found to effect complete clearance of the disease. The beneficial results are seen in varying degrees in almost every case treated for 6 months or more, the improvement being both clinical and bacteriological. The bacilli, however, persist long after the subsidence of the clinical activity. An average case of moderately advanced lepromatous type takes 3 to 4 years in becoming bacilli-free. Whether these drugs will prove an actual cure for leprosy is now too early to say. Because leprosy is a disease which shows such great variations in type, symptomatology, degrees of mildness and severity and its prolonged course, that only a patient and prolonged investigation can allow the limits of the value of any drug to be adequately determined. It is, however, believed that in India about 80 to 90 per cent of the lepromatous cases will recover in a period of 5 to 7 years if adequate enough provisions could be made for treatment with these drugs.

It should not, however, be overlooked that curative remedies cannot overcome disabilities due to nerve damage or muscular atrophy. Neither can such remedies ameliorate or cure permanent damages to such structures as eyes, nose, larynx, etc. This is a wide and hitherto neglected aspect wherein the specialised services of orthopedic surgeons, naso-laryngologists and eye surgeons are called for. Every crippled case, of whatever type of leprosy, until and unless re-absorbed into productive employment is as much a failure as any lack of success in finding a cure.

Overmuch importance however should not be attached to this matter of improved treatment. Not that it is not important—it is particularly highly important in leprosy—but because of the danger of it being regarded as removing the need of a reasonable degree of isolation. Sulphone treatment will doubtless be an effective aid to isolation in so far as it will clear up the disease and cut off the need for almost life-long detention and will bring it within the limit of a few years at most. But let us beware of the repetition of the mistake which was committed in the wake of the discovery of the injection treatment with hydnocarpus oil.

From this brief review three conclusions emerge: (1) No case of leprosy can arise without previous contact with an open case and that all severe, open cases arise in persons exposed in early life. Therefore, the establishment and maintenance of a reasonable degree of isolation of only the open cases from contact with children and young people is of paramount importance, thus rendering indiscriminate as well as rigid isolation unnecessary.

(2) Improved treatment with sulphones should be attractive and economic enough for wider practice of isolation on the part of the patients as well as on the part of the authorities as it cuts off the need for indefinite detention and thereby lowers the huge per capita total cost as has hitherto been the case.

(3) The epidemiological and clinical knowledge of the disease has progressed sufficiently to demonstrate the utter folly of an exaggerated conception of the infectiousness of the disease and its incurability, and the consequent dread and hatred which have covered the disease throughout the ages. It should, however, be mentioned that while a public sentiment which leads to the avoidance of close contact with leprosy patients, particularly of the open type, thus favouring his comparative isolation, is to a certain degree wholesome and protective, yet carried to an excess, it is as senseless as to be deprecated. This, no doubt, is true for all cases of infectious and contagious diseases.

The progress of knowledge has, therefore, been sufficiently advanced to enable us to approach the problem in a scientific but more humane and economic way and rid the country of this most ostracising disease of the world. But to have knowledge is one thing, and to take it to the people and apply it in a nation-wide practice in an organised manner is another.

In West Bengal, it is estimated that there are about 3 lacs of leprosy cases. Fortunately, about four-fifths are closed neural cases who can therefore be treated at the out-patients' clinic or in hospitals, if and when necessary, without isolation. The remaining one-fifth is lepromatous and constitutes the open cases who not only require treatment but isolation as well. But the existing facilities and provision for treatment and isolation are entirely inadequate. There are 95 leprosy clinics where not more than 10 to 15 thousand patients are seen annually, and 6 in-patients' institutions with about 700 beds only. The first in-patients' insti-

tution in India was founded in Calcutta with 40 beds as far back as 1811. This institution was the predecessor of the Albert Victor Leprosy Hospital. It therefore took full 140 years to increase the number from 40 to 700. A marvellous record of progress indeed! What is more, these provisions for treatment and isolation are not only too inadequate in quantity but in quality as well. Most of the clinics do no more than inject oil into cases who perhaps need not much of injection but reassuring and symptomatic advice or else need orthopedic and other surgical care. Opportunities for preventive propaganda and, case-finding and follow-up—an essential feature of any special clinic and as originally provided for by Dr. Muir—are almost completely neglected. Facilities in the in-patients' institutions, too, cannot be said to be of as high an order as required by modern standard.

Until now no out-door facilities for leprosy treatment have been provided in any of the general hospitals of the State—not even in the teaching hospitals—despite repeated demonstrations of the fact that leprosy is one of the least infectious diseases, particularly for adults who are relatively more immune to the disease. Leprosy treatment is being given with impunity at the out-door department of the Calcutta School of Tropical Medicine for the last three decades. The Health Minister and the heads of the Health Directorate are closely associated with the research and the so-called anti-leprosy campaign in the city of Calcutta and elsewhere in the State. Yet these facts do not seem to have any salutary influence on their traditional approach of deprivation to the leprosy sufferers.

On the other hand, in Madras the largest out-patients' clinics are attached to the Leprosy Department of the Government Hospital, Stanley Hospital and Vellore Mission Hospital. In this connection, Cochrane in 1944, stated, "It is of interest to note that the routine treatment of leprosy is now accepted by the authorities as a proper function of the general medical service of the Madras Presidency, and that it is now agreed that if a patient has leprosy he has as much right to receive treatment at a general hospital as has a person suffering from tuberculosis, cancer or syphilis. A further advance was made in Madras when steps were taken by the order of the Surgeon General for admission into all district hospitals of leprosy-sufferers who require immediate medical or surgical treatment, either for diseases other than leprosy or for acute complications due to leprosy."

Further, before leprosy can receive the attention it merits, a much greater emphasis must be placed on its teaching in medical schools and colleges. The importance of an adequately staffed and properly equipped leprosy department in every teaching hospital is obvious and needs no comment. But perhaps the University of Calcutta is too engrossed in other affairs to find time for looking into such a 'hedious' problem. But, meanwhile, let the medical profession remain ignorant, let infection spread among children—the precious heritage of the Nation—then, when the disease becomes obvious, turn them out of school, out of employment, and herd them together in a condition of utter physical and spiritual decay into a "leper asylum," or else let them swell the company of those "who walk alone". It simply surpasses our comprehension how a nation can ever hope to develop a campaign for the control of a disease which has hitherto baffled all efforts, without fulfilling these essential preliminaries.

Plenty of field study and general propaganda has been carried out by the West Bengal Leprosy Association. But education and research have to a great extent become futile, because they did not result in an energetic action programme, apparently on the chronic plea of lack of money. It is doubtless that any action programme to be a success must be developed within the framework of the economic resources of the country. It must not, however, be overlooked that the results of any social service depend not only upon the money available but the way in which it is spent. Limited funds do not make an adequate and good service impossible, as Grant[1] says, provided the people are prepared to contribute work in lieu of money and provided there are people with a knowledge to plan such a service. The greatest indictment against the present government is that it could not canalise and direct the tremendous youthful enthusiasm and energy aroused in the wake of Freedom into socially useful and constructive channels.

It is obvious that in any scheme of leprosy control, prevention of infection of children must of necessity take the first place, and treatment, the second place, only as an aid to prevention. Various countries have carried out this objection in various ways. The Norwegian plan of control has been taken as a model in some countries. There, in the later half of the last century, patients who observed certain rules for isolation were allowed to stay at home where they were inspected and treated by the public health authorities; only those who infringed these laws, or had not the facilities for carrying them out, were isolated in institutions. In this way, leprosy has been exterminated from Norway. The extent to which home isolation can safely be permitted depends chiefly on the facilities available for outside treatment, the intelligence and dependability of the patient as well as the adequacy of the public health service to supervise and enforce general rules. Obviously, this method, as a general policy of control, is at present more a theoretical matter than a practical possibility in our country.

In some countries which are wealthy and where the problem is limited, mass isolation in sanatoria or colonies is practised. From the health point of view it is undoubtedly the most effective method. But it is a very expensive proposition. Besides, the patients willl not willingly go and remain there long as they would lose touch with their own people and familes.

[1] GRANT, J. B.—The Health of India, April 1943, p. 5 (Oxford Pamphlets on Indian Affairs, No. 12). Humphrey Milford, Bombay.

To overcome these difficulties it has been suggested that isolation by groups of villages is the only practicable method suited to the present socio-economic condition of the country. It has also been suggested that it "should be so carried on that the vast majority of patients can continue to be the normal members of the society, keeping their earning capacity and enjoying touch with relations and friends and yet observing all necessary restrictions and precaution against infection of children." This, no doubt, appears to be the cheapest practicable enough measure as well as most rational and humane method. But the success of such a measure would depend as much upon arousing the village communities from their morbid inactivity and educating them to the ideas of self-help and to the co-operative community efforts as upon the selection and training of personnel to run such rural organisation and an adequate technical supervision by the health authorities. We, however, think that while efficient but comparatively cheap village sanatoria should undoubtedly form the basis of the rural prevention system, there should as well be, in each district, at least one central sanatorium big and adequate enough to provide not only modern facilities of isolation, treatment and propaganda but for training of organisers and other workers of village sanatoria apart from facilities for epidemiological and occupational investigations. Each village sanatorium will have a clinic, if there is no outside clinic near by, and residential arrangement which will provide for accommodation of open cases of a de-limited group of villages, preferably by unions. But "the sanatorium will exist not for the benefit so much of the inmates as for the benefit of the people without it. Any person isolated in it will be there because that person cannot possibly stay outside without being a danger to children." Lest this discussion on village isolation gives rise to an erroneous impression that leprosy in West Bengal is only a rural problem it is necessary to point out that it is not only not so but the danger has perhaps become more serious in urban areas, particularly in Calcutta in recent years, due to acute shortage of floor space and overcrowding, as has been shown by Sen.[1]

From this brief survey of the situation in West Bengal it is evident that it is not really lack of knowledge nor even lack of scientific means but the pusillanimous attitude of the government which has hitherto made progress socially ineffective. While we appreciate fully the Himalayan difficulties which the Government of West Bengal have to face "in piloting a deficit State with a trunketed *lebensraum*, with a negative balance in the treasury and with an artificially imposed division depriving the State of its many various resources" as well as its main preoccupation with the intricacies of the refugee rehabilitation, we do not see how a State can deny its elementary obligation and responsibilities for amelioration and prevention of a disease which compels a sufferer to carry such a crushing burden of centuries of degradation, horror and hatred, so unjustifiably directed at his condition. Obviously it cannot.

Although no major assault to catch up with the extent of the danger is possible at present, it is, however, quite possible, nay, it is imperative, that a short-term action-programme designed to include only the various foundational steps and measures on which we have already drawn pointed attention should be launched without delay. In our opinion, such a short-term programme to be effective must be big enough to include:—integration of teaching of leprosy into the routine medical curriculum; facilities for out-door treatment of leprosy in all district hospitals and dispensaries including those in Calcutta (and no special leprosy clinic should be opened unless the conditions specially justify it); facilities for indoor treatment of leprosy patients as has been provided for in Madras; free supply of sulphone for widest possible use in lepromatous cases to check infection and tragic sequelae; improvement of services in the existing leprosy clinics on modern lines along with provisions for effective technical and general supervision; in-patient's facilities for middle class patients with provision for paying beds in the existing leprosy institutions; at least one modern hospital for research in specialised surgical aspects and occupational therapy of mutilating neural cases; at least two village sanatoria, as a pilot experiment, to evolve and demonstrate how it can best be adapted to the villge conditions to offer the maximum of good with the minimum of cost.

The question remains: Who is to do the job? The first special institution for leprosy sufferers alone was initiated in Calcutta as already mentioned as far back as 1811 at the instance of the missionary, William Carey. Until the twenties of the present century the initiative for leprosy work remained with the Mission to Leper. In 1920, anti-leprosy work received the greatest impetus by the initiation of research at the Calcutta School of Tropical Medicine followed later by the formation of the Bengal Branch of the British Empire Leprosy Relief Association, now re-named as "Hind Kushit Nivaran Sangh—Paschim Bangiya Shakha," on which the main burden of developing anti-leprosy campaign in the State now remains. But, obviously, a stage has now reached when, in the broader interest of the welfare of the people, the main responsibility must be taken over by the State Government that must forthwith prepare for a nation-wide operation. Relieved of the main burden of the organisation and routine survey work, the association will be free to devote itself in the investigations of social assistance and rehabilitation aspects which are so very essential for a successful leprosy campaign. Private persons and other volnntary organisations, such as National Memorial Gandhi Fund, Marwari Relief Society, Birla Trust, Goenka Trust and numerous other bodies, must also play their part. Until the brutal assault of the disease is halted and its direction reversed, no help is too much.

[1] SEN, P.—Leprosy in Calcutta: *Leprosy in India*, 21:76, 1949.

SHOLAPUR

The Venue of the XXVII All-India Medical Conference

B. V. MULAY, M.S. (BOM.)
Sholapur.

Sholapur is one of the largest cities in India with a population of 350,000 and is one of the centres of textile industry in the country, where 7 large spinning and weaving mills are flourishing. Situated within the jurisdiction of the Maharashtra and Karnatak Provincial branch, it is in the south of Maharashtra, placed on the borders of the Karnatak and the Nizam provinces.

Educationally backward for a long time during the British rule, Sholapur suddenly came into lime light, during the second Non-Cooperation Movement of the Indian National Congress, when Satyagraha led to rioting which culminated in the enforcement of Martial Law, and untold harassments to the citizens.

Sholapur has since made rapid progress in industry As regards rendering medical relief to the poor it has to-day an aggregate in-patient accommodation of 500 beds in 4 charitable hospitals and 3 maternity homes.

The city is placed on the G.I.P. Railway on a straight route between Bombay and Madras, 300 miles from the former and 900 miles from the latter.

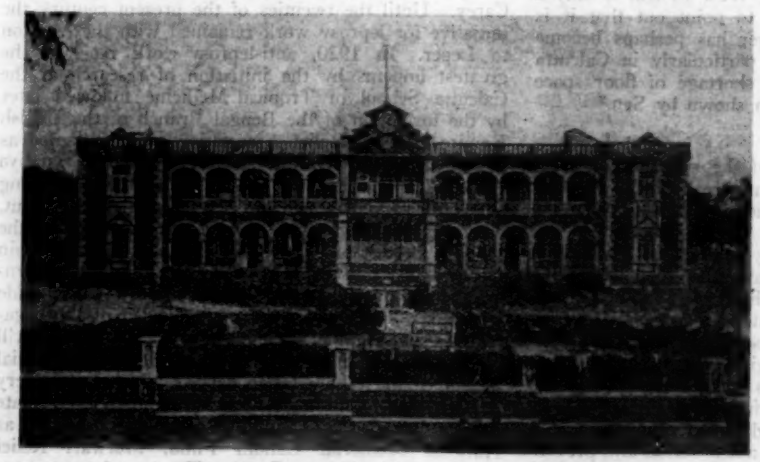
The photographs of some important hospitals and buildings, presented in this journal will surely create interest of the readers in the city and the conference, to which the Reception Committee earnestly and most cordially invites the members of the Indian Medical Association and the Medical profession assuring them of their sincere hospitality.

Sholapur Branch of Indian Medical Association

Before the foundation of the All-India Medical Association in Calcutta in 1928, the Sholapur medicoes started a medical union known as the 'The Sholapur Medical Society' under the ex-officio presidentship of the then Civil Surgeon and continued its life under varying vicissitudes till 1935 when the first elected president took charge of the society.

Within a year of this event the society was changed into a branch of I.M.A. and the event was celebrated by organizing the 1st conference of the twin provinces of Maharashtra-Karnatak. Under the enthusiastic guidance and initiative of the Poona branch of I.M.A. which came into existence in 1927, branches were formed in most of the districts of the 2 provinces and efforts of establishing a Provincial branch for Maharashtra-Karnatak succeeded in 1940. This has to-day 37 branches within its jurisdiction.

Sholapur invited the second provincial conference in 1944 under most depressing and anxious conditions and the success it attained encouraged the local branch to undertake the most onerous task of organizing the All-India Medical Conference of this year.



The Dhanarajgirji Hospital, Sholapur
in which has been located the office of the Reception Committee of the XXVII All-India Medical Conference

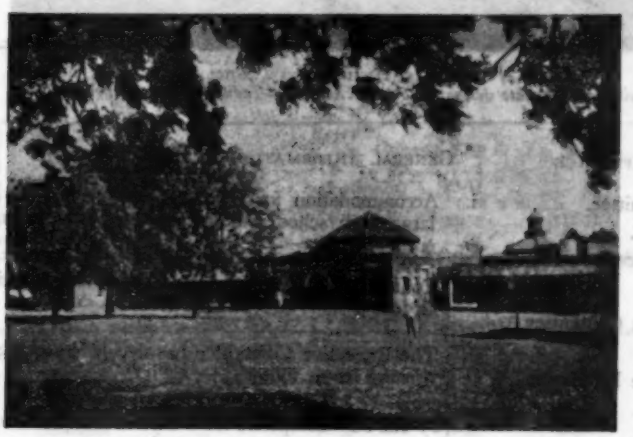
Brief History of Hospitals

1. *The Dhanarajgirji Hospital* — This hospital started in 1922 with a previous preliminary effort of 5 years, in a tin shed with 15 beds, an operation room

of a dimension of 10 ft. × 8 ft., blossomed into the present beautiful building in 1930 with 50 beds out of the philanthropy of Raja Dhanarajgirji. It has now expanded into a cluster of buildings housing 120 beds and contains different sections including a clinical laboratory and a fully equipped x-ray plant and appliances of electro-medical therapy all in charge of specialists and maintained out of private effort and self-sacrifice.

N. M. Wadia Hospital, Sholapur

2. *The N. M. Wadia Hospital*—The N. M. Wadia Hospital started in 1934 with 35 beds and expanded in 16 years to the present large dimensions with 100 beds, includes various medical departments and is conducted by a band of doctors imbued with sentiments of progress and sacrifice.

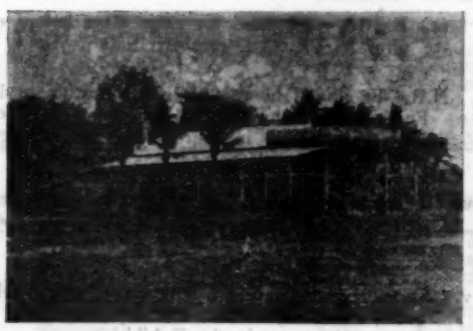


The Civil Hospital, Sholapur

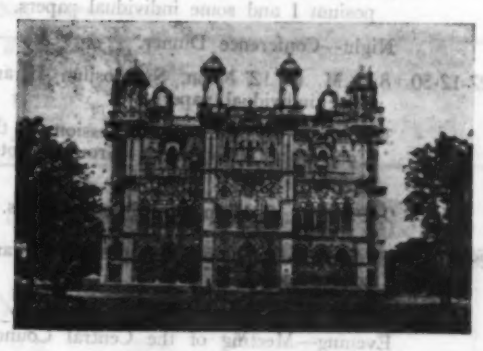
3. *The Civil Hospital*—The Civil Hospital has a past history of over 100 years and has an expansive layout for 100 beds.

Medical and Public Health Facilities

The city of Sholapur has 3 large charitable hospitals of about 100 beds each *viz.*, the Civil, the Dhanarajgiriji and the Wadia, 3 Maternity homes of 35 beds or more *viz.*, the Lady Dufferin, the Rajoobai



Siddheshwar Lake Temple, Sholapur



District Court, Sholapur

Hirachand and the Boyce. A new eye hospital of 50 beds is under construction and there are 15 charitable dispensaries maintained by the municipality, the mills and individual philanthropists.

Sholapur has a first class municipality which provides filtered water to the whole city and has a large sanitation department.

Premises of the XXVII All-India Medical Conference

The Haribhai Deokaran High School conducted by the widely known great educational society, Shikshan Prasarak Mandali of Poona, was the first private educational effort by the Sholapur public, and is a massive building housing 1,500 students and had ample open space around it. It has an assembly hall accommodating a thousand inmates.

Haribhai Deokaran High Schoool, Sholapur
which will accommodate delegates to the XXVII All-India Medical Conference

Provisional Programme of the Conference

24-12-50 Meeting of the Working Committee.

25-12-50 Meeting of the Central Council.

26-12-50 Open Session of the Conference.

9-30 A.M. to 12 Noon:

Address—Chairman Reception Committee.

Inaugural Address.

Speech at the Opening of the Exhibition.

Presidential Address.

A few announcements.

3 P.M. to 6 P.M.—Discussion on Symposium I and some individual papers.

Night—Conference Dinner.

27-12-50 8 A.M. to 12 Noon, Symposium II and some individual papers.

3 P.M. to 6 P.M.—Open Session of the Conference, Resolution, Group Photograph.

9 P.M. to 12 Midnight—Entertainments.

28-12-50 8 A.M. to 12 Noon—Symposium III and some papers.

3 P.M. to 5 P.M.—Some papers.

Evening—Meeting of the Central Council, I.M.A.

General Information of Arrangements

i. Accommodation for 800 persons is made in 2 large high school buildings within 100 feet of each other.

ii. Conference hall and halls for sectional scientific discussions are on the premises.

iii. The Executive Committee has decided to charge a camp fee as follows:

(*a*) Rs. 30/- composite for 3 days or less per head.

(*b*) Rs. 5/- in addition per head composite for extra non-vegetarian food.

(*c*) Rs. 10/- per head for extra days before or after 26, 27, 28 December, 1950.

N.B.—Food will be cooked in Bharatiya style. Food and refreshments will be served on tables. For those living in European style arrangements may be made on previous intimation.

iv. There are no good hotels in Sholapur where delegates and members can find comfort or good service.

v. Camp accommodation will be available for delegates, members, visitors and representatives of firms taking part in the Exhibition.

vi. All necessary arrangement of water supply and sanitation are being made.

vii. Transport between the Railway station and the Conference camp is being arranged.

viii. Negotiations are in progres for Railway facilities and suggestions are invited from provincial authorities of I.M.A.

ix. Railway concession in fare is provided if previous arrangements are made with Railway authorities. It is suggested that concession may be asked between a junction in province on trunk lines and Sholapur so that all visitors from that province will be able to take advantage of the concession.

x. Provincial councils and local branches are requested to inform in good time number of lady doctors and wives of doctors attending the conference.

xi. Weather temperature in December is 65 minimum and 85 maximum. Nights are pleasantly cold and a single blanket and jersey are enough for sound sleep. Visitors will enjoy comfort and elegance in a warm-suit in morning hours and will be happy in linen apparel in the afternoon.

xii. Mosquitoes have no affinity for bitter medicoes.

Railway Train Services Both Ways

Station	*Madras Mail*	*Madras Express*	*Passenger*	*Passenger*	*D. Queen*	*P. Mail*
Bombay	22-25	15- 3				
Poona	2-30	5-30	11- 0	23-45		
Sholapur	7-30	23- 4	17- 0	9-30		
Bombay	6-15	13- 0			10-30	12-30
Poona	1-35	8-58	7- 0	17- 0	7-40	8-10
Sholapur	19-19	3-21				

Bezwada—Sholapur

	Express	*Passenger*	*Express*	*Passenger*
Bezwada	23-30	7- 5	3-50	20-15
Secunderabad	7- 5	17- 5	17-25	9-40
Wadi	14-55	23-11	12- 0	4- 0
		Change		
Wadi	15-30	23-55	11- 2	2-54
Sholapur	19-19	3-21	7-27	23-40

Madras—Sholapur

	Madras Mail	*Madras Express*	*Madras Mail*	*Madras Express*
Madras	21-15	7-45	5-45	19- 5
Guntakal	0-37	18- 7	17-46	8-32
Wadi	15- 0	23-30	11- 2	2-54
Sholapur	19-19	3-21	7-27	23- 4

Bangalore—Sholapur M.S.M. Meter Gauge

	B.P. Mail	*B.P. Express*	*B. Poona Mail*	*B. Poona Express*
Bangalore	21-30	8-20	6-30	10-10
Hubli	13-10	0-25	13-15	4-30
		Change		
Hubli	16-35	5-45	13- 3	21-55
Sholapur	6-55	19-20	23-35	8- 0

Bangalore—Sholapur—Broad Gauge—*via* Guntakal

Bangalore	8-45	22- 0	6- 0	18-35
Hindoopur	11-50	1-10	2-40	15-25
Guntakala	17-35	7-35	19-40	9-25
		Change		
Guntakal	18- 7	8-37		
Sholapur	3-21	19-19	7-27	23-40

NOTES AND NEWS

T. B. SEALS SALE CAMPAIGN

The Tuberculosis Seals Sale Campaign in the prevention of Tuberculosis was started all over India on and from the 2nd October, the birthday of Mahatma Gandhi, and is to continue for four months ending with a Tuberculosis Week terminating on the 3rd February, 1951.

The Tuberculosis Association of India, the central organ, will print and distribute the stamps to the affiliated State Association. The Central Association will deduct only 6% of the total collections, excluding the cost of printing and other accessories, and will return the balance to the affiliated State Associations.

Arrangements will be made to sell the seals through the postal windows, departmental stores, associations and industrial groups, clubs and educational institutions, and through mail.

It was a Postman's Idea—The T. B. Seals Sale was first started in Denmark 46 years ago (1904). While distributing large Christmas mail a postman was pained to see some lame children suffering from tuberculosis of the bone. It occurred to him that if an additional one-penny stamp was put on the large number of letters that were posted every day sufficient money could be collected for the treatment of the sufferers. His suggestion was accepted by the King and soon a hospital was ready. Since then the T. B. Seals Sale has been organized in a number of countries.

It is for the first time that such a campaign is being underaken in India, and in this national battle against tuberculosis the entire public, it is hoped, should co-operate.

POST-GRADUATE COURSE IN TUBERCULOSIS

A post-graduate refresher course in Tuberculosis it is learnt will be held under the auspices of the Tuberculosis Association of India in Hyderabad from November 1 to November 30, 1950. This course is being organised with a view to help general medical practitioners to learn the latest developments in anti-tuberculosis work and also to get them interested in the campaign against tuberculosis.

CARDIOLOGICAL SOCIETY OF INDIA

The Cardiological Society of India, has decided to run a Refresher Course in Cardiology with demonstrations in the wards of the Hospitals in the month of November-December, 1950 at Calcutta.

The following programme has been provisionally drawn up for the purpose:—

1. Anatomy and Physiology of the Cardiovascular systems (its normal range); (2) etiological aspects of heart diseases; (3) pathogenesis of heart failure; (4) hypertensive heart disease; (5) demonstration in the wards; (6) coronary heart disease; (7) demonstration in the wards; (8) rheumatic heart disease; (9) demonstration in the wards; (10) syphilitic heart disease; (11) pericarditis; (12) congenital heart disease; (13) demonstration in the wards; (14) disorders of rate and rhythm; (15) demonstration in the wards; (16) diagnosis of heart disease (with special investigations); (17) management of heart failure (congestive); (18) heart diseases in relation to tropics; (19) heart diseases in relation to pregnancy and (20) heart diseases and anaesthesia.

Members of the medical profession interested in the subject are requested to contact the Hony. General Secretary, Cardiological Society of India, 67, Dharamtala Street, Calcutta-13.

THE SECOND ANNUAL ALL-INDIA CONFERENCE OF INDUSTRIAL MEDICINE

Under the auspices of the Society for the Study of Industrial Medicine, the Second All-India Annual Conference of Industrial Medicine will be held on 17th, 18th and 19th December, 1950 at Jamshedpur. The Hon'ble Minister of Health, Rajkumari Amrit Kaur will inaugurate the Conference.

The object of the Conference is to bring together all the medical officers associated with industries, to exchange ideas and to work in co-ordination, thus giving an incentive to their work and furthering the cause of industrial medicine as a whole.

To this Conference are invited all medical officers associated with various industries. Industrialists may also send their own delegates to this Conference. The Council of the Society will make arrangements for accommodation etc. Those who wish to attend the Conference and those who wish to read papers are requested to communicate to the Honorary Secretary, Society for the Study of Industrial Medicine, C/o. Tata Main Hospital, Jamshedpur.

NUFFIELD FELLOWSHIPS FOR INDIANS

The Nuffield Foundation has offered five travelling fellowships to India for 1951-52, one each for engineering, natural sciences and social sciences and two for medical sciences.

An advisory committee has been appointed in India by the foundation to advise on the administration of the fellowships scheme. Mr. G. L. Mehta, member, Planning Commission, is its chairman. Dr. C. V. Raman and Messrs. S. Varadachariar and J. J. Ghandy are the members.

The fellowships—offered with the object of advancing the interests of India as a whole and further strengthening the academic ties between India and the U.K.—are tenable normally for one year. Men and women who have shown unusual capacity in advanced knowledge and teaching in the specified subjects will be considered for grant of the fellowships. They should be between 25 and 45 years of age, hold preferably a Master's or Doctor's degree with a year

"... a diagnosis

which is often

missed"

Watts, C. A. H.: Endogenous Depression in General Practice, Brit. M. J. 1:11-14, 1947

In mild depressive states, 'Dexedrine' will often produce some or all of the following effects:
(a) increased mental activity, interest and accessibility;
(b) increased self-assurance, optimism and sense of well-being;
(c) psychomotor stimulation; increased capacity for physical and mental effort.

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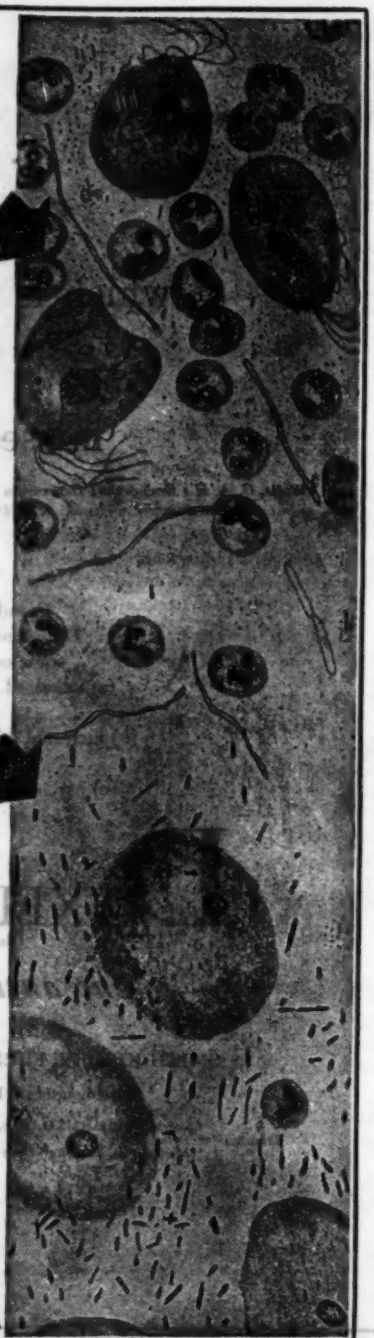
When glycogen-laden epithelial cells and Döderlein's bacilli are absent from the vagina, the *p*H rises, and pus cells, *Trichomonas vaginalis* and pathogenic organisms appear.



Acetarsol Vaginal Compound —Boots—

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or more of teaching or research experience on the staff of a University or comparable institution.

FURTHER CAPITAL GRANT FOR CANCER HOSPITAL

The Government of West Bengal have sanctioned a further capital grant of Rs. 1 lakh to the Chittaranjan Seva-Sadan during the current financial year towards the cost of construction, and purchase of equipment for the Chittaranjan Cancer Hospital, in addition to the capital grant of Rs. 4,50,000 sanctioned for the purpose during the last two years.

HEALTH MINISTERS' CONFERENCE IN DELHI

While inaugurating the Health Ministers' Conference which was held in New Delhi from August 31 to September 2, Pandit Jawaharlal Nehru, Prime Minister of India stressed the need for the State paying more attention to public health measures as distinct from measures for "private health."

The Prime Minister said that public health depended on more fundamental matters like food and housing than on drugs and medicines. Unless undernourishment and housing conditions were improved, progress would not be made.

Scientific Approach—Pleading for "a scientific approach", the Prime Minister said they should be prepared to accept anything which factually or theoretically justified itself. At least in theory, modern medicine was based on that scientific approach. To call the modern system of medicine "Western" was completely "wrong" though the West had a "great and dominant share" in the recent past in its development. The system was based on generations of experience of India, Arabia and other countries.

He next referred to the question of indigenous systems of medicine being practised in the country. As far as public health, sanitation and preventive aspects were concerned, the older systems had not paid much attention and they had to adopt modern methods, he said.

* * * *

Rajkumari Amrit Kaur, Health Minister, in her address to the conference as its Chairman, declared that organization of parallel health services based on the indigenous systems, homœopathy and on modern medicine which had developed in recent years in different parts of the country, was a "definitely retrograde step."

"These systems," she said, "lack some of the essential elements of a complete service to meet the total health needs of the pople. For instance, ayurveda and unani have no surgery, preventive medicine, obstetrics, radiology and all the more modern developments which are of great importance in the diagnosis, treatment and prevention of disease."

In the circumstances, she added it was unimaginable that India could deliberately accept the indigenous systems as the bases on which to build her national health services and ignore the claims of modern medicine.

* * * *

The Conference accepted the recommendations of the Indigenous System of Medicine Committee and the Homœopathic Enquiry Committee. It passed six resolutions on the basis of the recommendations of these two committees dealing with the following subjects: Indigenous systems of medicine and Homœopathy, recruitment of senior health personnel, the establishment of a Central Council of Health, the role of voluntary organisation like missions and philanthropic bodies, the establishment in Calcutta of a training centre or maternity and child health personnel and the danger to public health from the sale of spurious drugs.

* * * *

In accordance with a resolution of the National Planning Committee, the Health Ministers' conference resolved "to absorb the practitioners of Ayurvedic and Unani systems of medicine into the State Health Organisation by giving them further scientific training wherever necessary" as health personnel like doctors, physical training experts (ustads), sanitary staff, masseurs, nurses, midwives, etc.

The Conference agreed that practice of indigenous systems of medicine by unregistered persons should be prohibited. The conference recommended that preliminary educational qualification required for a degree course should be I.Sc. with physics, chemistry and biology.

The preliminary educational qualifications for a diploma course should be Matriculation. Provision should be made during the medical training to give the students an adequate knowledge of physics, chemistry and biology.

In a period of five years the standard of admission should be raised to I.Sc.

* * * *

In respect of both the degree and diploma courses. Ayurvedic students should have an adequate background of Sanskrit education and Unani students Arabic and/or Persian.

Both for the degree course and for the diploma course the teaching of the subjects of anatomy, physiology, pathology, hygiene, radiology, medical jurisprudence and toxicology will be on the basis of modern medicine.

The standard in each subject for the degree course should conform to that prescribed by the Indian Medical Council and the standard for the diploma course should be that enforced for the medical licentiate course. Arrangements should also be made for instruction in the physiology and pathology of the indigenous systems.

The teaching of surgery, including ophthalmology, obstetrics and gynæcology should be, in respect of

both the degree and the diploma courses, on the lines of modern medicine and the standard will be the University standard in respect of the degree course and the licentiate standard for the diploma course.

Pharmacology, *materia medica* and therapeutics should be taught on the lines of both modern medicine and of the particular form of indigenous medicine (Ayurveda or Unani) which the student would take up. Here also the standard required would be, in each subject, those prescribed by the Indian Medical Council for the degree course and those for the training of medical licentiates for the diploma course.

In view, however, of the fact that it was not possible at this stage to define in detail, the conference said in its resolution, the courses of study of clinical subjects this matter would be reconsidered by the Central Council of Health Ministers.

The period of training for the degree course should be five years, and for the diploma course four years.

In a period of 10 years all intsitutions giving the diploma course should be raised to the degree standard.

For the post-graduate course in Ayurveda or Unani for practitioners of modern medicine the period of training recommended was one year.

In all the non-clinical subjects it was desirable that the students undergoing training in the indigenous systems should have common instructions, if possible, with the students who would study modern medicine.

Separate teaching arrangements would be necessary in respect of clinical teaching for students of indigenous systems. Well-equipped hospitals with adequate bed accommodation should be provided as well as properly equipped teaching departments for the instruction of students in these systems. The teaching staff of these institutions should be adequately paid.

The conference laid down that at least one college in each state offering instruction on the lines recommended should be started under the auspices of Government or with subsidy from State.

Research should be developed on the widest possible basis and on the lines indicated in the Chopra Committee's report. No aspect of the indigenous systems, including drugs, principles and practices should fail to receive attention.

The Government of India should concentrate on promoting research as speedily and on as thorough lines as possible because it was on the fruits of such research that a solution of the many matters that formed subjects of controversy to-day would be secured.

The Director of the Ayurvedic Research Institute established by the Government of India should also be the adviser to that Government on all matters relating to the development of Ayurveda in the country.

Suitable steps should be taken for crediting and publishing classical texts and for compiling text-books for instruction in the indigenous systems of medicine.

The Conference was of the view that the recommendations made in respect of indigenous systems should apply to Homœopathy in respect of the two types of courses.

Ayurvedic, Unani and Homœopathic qualifications should be distinctive and not mere imitations of the qualifications in modern medicine or of each other.

The recommendations of the Homœopathy Enquiry Committee regarding research were supported.

When employed in state health services the emoluments should be the same to the doctors of modern medicine, of indigenous systems and of homœopathy provided the training courses undergone in each case are of the same length and of the same standard.

The State Medical Boards appointed for the purpose of regulating registration and practice in these three systems should deal with standards of education with supervision over instruction and with professional conduct in the respective systems. These Boards should not deal with problems relating to the starting of institutions and their management as has been contemplated in certain bills sponsored by some State Governments. Other organisations should be established for these purposes. Those who have qualified themselves after the five-year and four-year courses should be eligible for registration. Those who take a shorter course should not be eligible for registration. The membership of the respective medical boards should consist of practitioners of the systems concerned and of registered practitioners of modern medicine. They might also have a legal adviser on them.

In another resolution, the Conference recommended that active cooperation should be developed between the Centre and States and between individual States over the whole field of health. It suggested that recruitment to the senior administrative posts, the higher research posts and full-time senior teaching posts should be made by advertisement on an all-India basis through the Union or State Public Service Commission as the case might be.

In its resolution on the establishment of a central council of health the conference said: "Whereas in the opinion of this conference it is necessary and vital for the health of the nation to strengthen the bond of unity between the Centre and the States through the development of joint action it is resolved that a central council of health be established with the Central Health Minister as Chairman and State Health Ministers as members under the provisions of Article 263 of the Constitution of India."

In the resolution on the role of voluntary organisations such as missions and philanthropic bodies in the development of health services and training of health personnel the Conference urged that Govern-

ments should utilise these to full advantage and encourage them with grants from public funds.

The Conference expressed its opinion that the resolution of the Indian Medical Council recommending to State Medical Councils the desirability of granting registration to foreign doctors holding registrable qualifications in their own countries which had no reciprocity with India should be given effect to by State Medical Council during the period such personnel were attached to voluntary organisations and so long as they did not practise medcine for personal gain.

The Conference passed a resolution urging the Central Government to accept the proposal to establish at Calcutta an association with the All-India Institute of Hygiene and Public Health a centre for the training of maternity and child health workers with assistance from the United Nations International Children's Emergency Fund.

Regarding control of the purity and quality of drugs and of blackmarketing in drugs, the Conference urged that the Central and State Governments should utilise to the full their existing powers under the Drugs Act of 1940 and the Drugs Control Act of 1950 as well as acquire new powers, if necessary, to establish an effective control over malpractices.

The Conference, recommended that Governments should prepare comprehensive plans for attaining self-sufficiency in essential medicines like antibiotics, insecticides, sulpha drugs and antimalarials.

The Conference also recommended that steps should be taken to ensure purity and proper quality of the basic drugs used by the practitioners of indigenous systems of medicine and homœopathy.

I.M.A. PRESIDENT ON SOME VITAL MEDICAL PROBLEMS

The following are excerpts from the representations made by Dr. Chamanlal Mehta, the President of the I.M.A. to the Minister of Health, Government of India, bringing to her notice and to the notice of the Health Ministers of the States who were to meet at Delhi in the Health Ministers' Conference the problems on which the medical profession at large feels keenly:

(1) *Public Health Personnel, Medical Education and Medical Research*—

PUBLIC HEALTH PERSONNEL: The Public Health Officers are drawn at present from the persons available in the Province. The field of selection is, therefore, restricted. Their scale of salaries is similar to that paid to the Civil Surgeons. The Civil Surgeons are allowed to practise. They, therefore, earn more than the Public Health Officers. The result is that the medical students are attracted more to the clinical practice rather than to specialize in Public Health. A large majority of the officers in the Public Health Service, if an enquiry is made, will be found to be people of very mediocre calibre, with no initiative or broader outlook and with very little education and experience in Public Health Work.

MEDICAL EDUCATION—If the medical education is to be of good standard and uniform all over the country, and if efficient and devoted professors are to be drawn from the medical profession of the country, medical education should be taken over by the Central Government. Low and varying scale of salaries offered by the different states do not attract good and efficient medical persons to the posts of professors and teachers in the medical colleges. Even those who accept those posts, are always on the look-out for better paid jobs. Thus there is never created any interest and love in the subject of his choice. Devotion and love for it, which are necessary for the progress in science, do not exist. It being a provincial subject, the field of recruitment is also the province and thus very restricted, particularly in the smaller states of the Indian Union.

Personal views of the State Health Ministers and State Ministers, their financial stringencies, loyalty of State Legislatures to their regional languages, constant interference in the work of the institutions, different policies adopted in regard to medical education sometimes influenced by political considerations and many other handicaps under which the medical education institutions are placed, hamper the progress of medical education in the country.

MEDICAL RESEARCH—Medical Research in India is very poor. The lack of proper personnel for medical research is so striking that no words are necessary to draw attention of the Health Ministers of the States to the urgent necessity of putting medical research in the forefront of our requirements. We cannot depend upon other countries for advances in our country in methods of treatment and in finding out causes of diseases.

I make bold to suggest the following steps to improve the situation:—

1. The Medical Education and Medical Research should be taken over by the Central Government.
2. All-India service be instituted for Public Health Officers, full time Professors and Assistant Professors for Medical Teaching Institutions.
3. A Central Training Institution for these personnel be started, as was contemplated once, but unfortunately not materialised.

If the suggestions made above are accepted, we shall be able to put the medical institutions not only in a very favourable position in the matter of uniformity and standard of training and progress in the medical science, but also they will turn out able and useful medical men well fitted to serve the country.

If an All-India Service for Public Health Officers and Medical Professors, Assistant Professors and Research Workers is established, the field of recruitment for those services will be enlarged, facilities can be provided for their training and refresher training for the Junior Officers in those cadres, scales can be improved upon and uniformity brought about. It will bring to the persons employed under such service, better remuneration, dignity and honour, better facilities for

their work and training, which in turn will create in them satisfaction in their needs and devotion and love for their subjects.

This might look like reviving the old-time Indian Medical Service, which was unpopular in the country, but if adequate safeguards are provided so that the officers posted in the different states remain under the disciplinary control of the state authorities and that their transfer cannot be effected without concurrence of the states concerned, there should exist no opposition to the establishment of a central service. The Indian Administrative and Indian Police Service work on all-India basis. Provinces like Madras and Bombay may not like to have such a service, as they are advanced little more, but such a central pool of officers, professors and teachers will be a boon to the other states. Even Bombay and Madras cannot claim that they have efficient, well qualified, devoted persons in adequate required by them. Quite a good few posts are vacant in these provinces. Quite a good few posts fall vacant and remain unfilled for considerably long time, and even if filled, they do not get the right type of people.

Arrangements can be made so that a certain number of such high posts under each state can be filled in from the provincial cadre.

During my recent tours in different parts of the country, I had occasions to discuss the problem of medical education with teachers, and principals of medical colleges. The general feeling was that if medical education was to advance and attract the best brains, such stops as suggested above should be taken.

The whole fabric of medical education, medical research, public health and even medical relief in the country would depend upon what type of persons we are in a position to attract to teaching posts in the medical colleges in different parts of the country. These subjects therefore, should be handled on an all-India basis.

(2) *Lake Medical College, Calcutta—*

We have learnt from our Calcutta Branch that the Government of India have decided to close down the Lake Medical College and its hospital at Calcutta from September 1952 and that the admissions to the College for condensed M.B.B.S. course is stopped.

This was rather a painful surprise to us, since it was the desire both of the Government of India, and the medical profession that the Medical Licentitates in India should be given an opportunity to come up to the standard of M.B.B.S. with a view to have in India, in times to come, medical persons with uniform standard of education. The Licentiates also appreciated very much the facilities provided for bringing themselves upto the M.B.B.S. standard. Quite a large number of Medical Licentitates have been taking advantage of this facility, not only in the Lake Medical College, but also in other medical colleges. Admission at some of the medical colleges is available to them, no doubt, but the number taken up at those colleges is extremely small.

Only the Lake Medical College, which was specially meant for this purpose, was taking up a large number of Licentiates for the condensed course. It will be a pity if this College, which still attracts quite a large number of Licentiates to the condensed course, should stop the admissions and the College be closed down.

We feel that as long as there is a good number of applicants for admission to the Lake Medical College from the Medical Licentiates, the College should not be closed down and admissions not stopped. If another period of five years is given to the Licentiates to raise themselves up to the M.B.B.S. standard, opportunities will be given to a large number of the Licentiates in the country.

Quite a good number of students had to join the Licentitates' course in preference to the M.B.B.S. because of their not getting admission to the Medical Colleges, which even now give very restricted admission. It was not that all the students who took up the Licentiates course was of inferior type as students, but it was because of the restricted admissions and financial conditions that they had to take up that course.

(3) *Drugs Act 1940—*

Drugs Act, 1940—This Act has been enforced in some states, but it is not enforced uniformly throughout the State. Certain towns and areas are brought under the enforcement of the Act. Such partial enforcement cannot achieve the desired results. What is controlled in one town or area of a State is offset by the activities and working of the Drug manufacture and trade in other towns and areas of a State. Such partical application of the Drug Act had to be initiated, we are told, not because of shortage in personnel, but of insufficient funds at the disposal of the Minister of Health.

Personnel for Implementing Drugs Act—For years, we were clamouring for starting some College of Pharmacy in the country for the purpose of producing efficient and trained personnel to enable the State to enforce the Drugs Act. Now that some of the states particularly Bombay have such a college established and qualified personnel are turned out, such qualified graduates have to go begging at the door of the manufacturing firms for jobs even as canvassers for their products, just because the State though it has great necessity of their services, cannot absorb them. It is a great pity. I have information that the State of Bombay has employed only 6 Inspectors to inspect the premises of manufacturing works and selling shops and these manufacturing firms and selling shops run into hundreds only in the City of Bombay—leaving aside the state. It is impossible to have any effective control, inspite of the best efforts of the Minister of Health and the Drug Controller.

Penalty of Offences:—I. Offence under the Drugs Act either for manufacturing substandard or spurious or adulterated drugs and proprietary medicines even falsely labelling the bottles and packages, etc. should be made offence against the State, so that the

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Drug Controlling Authority can prosecute the offender. Unless the Drugs Act is so amended, the successful control by the authority will not be enforced. It should be and it is actually offence against the state and the State should have a right more so under the present degenerated ethics of the country, to take up the matter directly. The racketeering in spurious and imitated drugs in the Bombay State recently brought to light by the splendid efforts of the Drug Controller of Bombay, will not be effectively dealt with unless powers of prosecution are given to the Drug Controller.

2. Punishment also should be deterrant. Limits of both imprisonment and fine should be increased considerably. Comparing to the profits these people make, a penalty of one year's imprisonment or a fine of Rs. 500 or both is very light and not adequate to set an example to others not to put a stop to their activities.

JOINT MEETING OF THE WORKING COMMITTEE, I.M.A. AND THE CHEMICAL MANUFACTURERS' ASSOCIATION

The joint meeting of the representatives of the Chemical Manufacturers' Association and the Working Committee of the Indian Medical Association met at Cuttack on 8-7-1950 and had very frank discussions and made suggestions as to how to improve the Indian Drug Industry and popularise its products.

The following suggestions were made:—

GOVERNMENT:

1. Drugs Act be uniformly enforced all throughout the country. The offence of preparing spurious and substandard preparations should be made a cognisable offence.
2. Government be approached to make it possible to get all Indian products tested at the Government Central Laboratories.
3. Government be approached for help to start basic chemical industry.
4. Government should not grant permission to start a new concern unless conditions laid down are fully implemented.

I.M.A.:

5. The Indian Medical Association & Chemical Manufacturers' Association should appoint an expert committee on the lines of the Pharmaceutical Committee of the A.M.A. which should (1) lay down conditions necessary to all pharmaceutical concerns to be started (*a*) should scrutinise the claims of the various preparations and put their seal of approval. (*b*) should inspect the firms and testing laboratories of the firms off and on and make their reports to the Indian Medical Association and Chemical Manufacturers' Association.

MANUFACTURERS:

6. Each firm should have its testing laboratory.
7. They should start two testing laboratories one at Bombay and another at Calcutta, financed by the Chemical Manufacturers' Association, but controlled by the Joint Committee. These laboratories should establish a close contact with teaching institutions and research workers.
8. The Chemical Manufacturers' Association membership should be restricted to those, who fulfil the conditions laid down to maintain the standard of products and rules of ethics.
9. They should not compete among themselves in manufacture of one and the some preparation, but should specialise for certain preparation. This can be done by common consent
10. They should give impetus to manufacture of basic chemicals, synthetics, biotics, vitamins, etc. in addition to the biological and other B.P. preparations.
11. They should not advertise their products in lay press, cinemas, etc.
12. They should establish some fellowship for research work and clinical trials of Indian products, in reputed medical institutions.
13. A list of Indian equivalents to foreign products be prepared.
14. Co-operation of the retail chemist be secured.

GURUMURTI MEMORIAL PRIZE

The Hony. General Secretary, Andhra Provincial Branch, Visakhapatam, writes that it has been decided to award the Gurumurti Memorial Prize this year, and that the following rules and conditions have been framed for the award of the prize:

(1) The competition is open to all members of the Andhra Provincial Branch of the Indian Medical Association. (2) The prize will be awarded to the best essay. (3) The subject chosen for the essay this year is "THE ROLE OF THE GENERAL PRACTITIONER IN THE PREVENTION OF DISEASE." (4) The essay shall not exceed ten pages of double-spaced typewritten F'cap half sheets. (5) The name, qualifications and address of the author shall be type-written on a separate sheet and attached to the essay. (6) Three copies of the essay shall be sent to the Hony. Gen. Secretary, Andhra Provincial Branch, Indian Medical Association, Vishakhapatam so as to reach not later than the 31st December, 1950. (7) The prize-winning essay will be published along with the other papers of the Scitntific Session. (8) The prize will be a gold medallion, with descriptive inscription. (9) The name of the prize winner will be announced and the Prize given away at the ensuing Conference at Rajahumundry in February, 1951.

BENGAL MEDICAL DIRECTORY

The Bengal Provincial Branch of the Indian Medical Association has decided to publish the first volume of the Bengal Medical Directory in November, 1950. This volume would contain the opinion of the I.M.A. on various medical and health problems and other matters of importance to the members of the medical profession. The volume would also contain a list of the 3,000 members of the Bengal Provincial Branch of the I.M.A., with their qualifications, medical registration numbers and correct addresses.

REVIEWS

A MEDICAL CAREER (Rotary guide to careers 12)—Issued under the auspices of the Vocational Service Committee of the Bombay Rotary Club, Published by Geoffrey Cumberlege, Oxford University Press, Pp. 16, Price As. -|8|-.

This little pamphlet has got the sub-heading. "Practical advice on the personal and educational qualifications, the opportunities and essential training required." This small pamphlet of 16 pages is divided into 11 parts dealing with qualifications, qualification desired, annual vacancies for students, courses of study, cost of medical education, general practice, service, openings after post-graduate works, post-graduate qualification in India, medical councils, and medical associations. The informations given are correct and we recommend the pamphlet to all intending candidates.

DOCUMENTA OPHTHALMOLOGICA—Volume IV (Advances in Ophthalmology)—Edited by F. P. FISCHER, A. J. SCHAEFFER, ARNOLD SORSBY, Published by DR. W. JUNK, the Hague, Netherlands, 13 Van Stolkweg, 1950, Price not mentioned.

This volume is dedicated to Dr. Kare Wessely who recently celebrated his seventyfifth birthday, and "is the Doyen not only of the Editorial committee of Documenta Ophthalmologica but also of German Ophthalmology." A comprehensive bibliography of his writings is given in this volume. The volume contains eight articles by M. A. Bouman (Quanta explanation of vision), K. Tansley (Visual purple), R. G. Hopkinson (Recent studies of lighting and vision), P. J. Waardenburg (Twin research in ophthalmology), B. B. Biethi (Ophthalmic aspects of protein deficiency and disordered protein metabolism), A. J. Schaeffer (Some aspcts of ocular pharmacology), G. A. W. Rutgers (Protective glasses for welding), J. S. Friedenwald and R. Moses (Modern refinements in tonometry). All the authors are specialists in their own branches of study and as such their contribution reflects original research. A careful perusal of these articles will enrich knowledge in the advances in ophthalmology, though the first article will appear to be too mathematical for the ordinary doctor.

N. G. MOJUMDAR.

YOUR QUESTIONS

A large number of letters are received by us where some kind of medical information is sought by the writer. Previously, these letters used to be published in our correspondence column with the hope of stimulating discussions but the results have been generally disappointing. Hence from next month we are opening a section, where we shall try to answer your questions. All the question must be sent in a separate envelope marked by the words "Your Questions." The same superscription should appear at the head of the paper in which the question is written. It may not be possible to answer all the questions received.

Please send us questions on matters relating to medical science only. Questions regarding service, medico-politics, books, journals and other sundry subjects will not be entertained for this section.

EDITOR, *J. Indian M. A.*

CORRESPONDENCE

The Editor is not responsible for any views expressed by the contributors

'DIARCHY IN MEDICAL SERVICE'

Sir,—The panicky manoeuvres of the 'Indigenous' busybodies to set up improvised Medical Councils and Colleges, to forestall the Central Government Committee with an 'accomplished fact', can only widen the rift between the systems. It would lead to establishing a permanent diarchy in medical administration, which means, plainly, anarchy instead of harmony in what should be a single Human World Health Service. That some provinces connive at them, even recognize them, only makes it more difficult for the Central Government to regularise the straggling practices into a well-knit and standard scientific unit. The old systems that once invited science to modernise them seem to have suddenly developed a constitutional distaste for science that now presumes to test their very *raison d' etre*. There is no accounting for taste. If, however, it is only a local habitation and name that they are hankering for, 'Allopathy' would only be too glad to resign her unsolicited and misbegotten designation and nicknames, and even go so far as to adopt the rival, 'Ayurveda', provided that the 'synthesised' product would be completely and unreservedly modernised to ensure the safety of human life! 'Allopathy' is not afraid of being incorporated or assimilated with others into one universal science. Our concern is that the care of human health should be in the hands of one single body fully trained in, and qualified to utilize, the entire knowledge that mankind has acquired up-to-date.

Two parallel bodies, at variance with each other, can only mean parallel irresponsibilities, specially here where undivided joint responsibility is imperative. Diarchy in politics is a matter of opinion; but, in medicine, established facts have to be faced. Political errors of judgment may be discreetly camouflaged; but, therapeutic blunders too often end in cremation, or burial! The unrestrained liberty, so long suffered, to practise the vital profession by a number of rival and competing bodies, some qualified, but mostly unqualified, has deteriorated into licence, and calls for early regulation, rather than appeasement at the cost of public safety.

Obviously, the old order is not going to oblige us by a graceful compromise. It is a pity that science is outcast, just when and where she is imperatively needed. The distaste has to be overcome by persevering with the preliminary sciences as a precondition for state-aid for the professional studies. Scientific medicine is not to be acquired without the A.B.C. (anatomy, biology, chemistry) of science. If the State cannot compel the old systems to study modern science, she has the bounden duty to prevent, by legislation if necessary, the old system from practising modern techniques of treatment by those not duly qualified for it.

Modern science offers the maximum safety of life, so far. It is up to the State to insist on it, as a matter of ultimate policy, if it cannot implement it at once. The unseemly attempts to sabotage such a policy, and to divide the indivisible joint responsibility, have to be resisted strenuously, if also helpfully. The people cannot feel happy by any means with their lives poised between two uneven stools!—I am etc.

5-6-1950.
Tower View,
Karamanai,
Trivandrum.

G. RAMAN PILLAI, M.B., CH.B.

DOCTORS' DRESS

Sir,—With regard to the communications about 'Doctors' Dress', appearing at present in the correspondence column of our journal, I beg to state with due respect to my professional brothers and I think, I am voicing the opinion of the majority of my colleagues that medical men will surely and strongly protest if they are asked to have some sort of identification and distinction on their dress, while on the road. We shall lose respect and look cheap.

Let us have always, please, our dress as simple as possible—no tie, no ring, no silk coat, no fashionable buttons, no exhibition of gold watch-chain, no undue show of the stethoscope, etc.—I am etc.,

M. C. BILPODIWALA, M.B., B.S., J.P.,
A Past-President,
I. M. A., Bombay Branch.

7-7-1950.
Dadar, Bombay.

RAUWOLFIA IN HYERTENSION

Sir,—I have read with great attention the very interesting article of Drs. D. C. Majumdar and K. L. Mukherjee on Rauwolfia Serpentina published in the July issue of your journal.

The learned authors have remarked that in Rauwolfia therapy they found that the subjective symptoms of hypertension were markedly alleviated and the patients felt that they got a new lease of life, but the reduction of blood pressure was not satisfactory in every case. This view differs widely from those of other workers. For instance Sen and Bose (*Indian Med. World*, July, 31), Bhatia (*J. Indian M. A.*, June, '42) and Vakil (*British Heart Journal*, Dec., '49) cited between them over a hundred cases treated successfully with Rauwolfia Serpentina.

Purity of drug is of great importance in preparing Rauwolfia alkaloid. As I have to handle very large quantities of this drug for manufacturing purpose, I can write from experience that Rauwolfia Serpentina sold in the bazars are often highly adulterated, the chief adulterant being Rauwolfia Canescens, a plant of the same species but containing an alkaloid of different chemical constitution and pharmacological properties. Bengali names for the two plants are Chhota Chanda and Bara Chanda respectively. So before isolation of alkaloid for therapeutic test it is necessary to get the plant examined by a qualified botanist for its purity.—I am, etc.,

28-7-1950.
Calcutta.

A. K. SEN,
Chemist, Eastern Drug Co., Ltd.

MISUSE OF SULHA, PENICILLIN AND ALLIED DRUGS

Sir,—How the most potent drugs are being misused, will be clarified by one or two instances out of the hundreds, as seen by me in the rural areas.

Public buy these sulpha drugs in the name of 'khos bari' (tablets which cure itches) from any apothecary's shop. The quacks use these drugs indiscriminately with the result that either the patients suffer invariably from overdose causing toxicity or from under doses making the bacteria resistant to the drug.

The other day, I was called to attend a boy in a neighbouring village. The boy had high temperature with unconsciousness and convulsion. His spleen was palpable and the conjunctivæ icteric. The pulse was unusually rapid with low tension. It was a frank case of cerebral type of a pernicious malaria (M.T. infection). I found that one quack had already pushed one lac penicillin for the malady. When I asked the gentleman why he had used penicillin in the case he replied that the drug cured all diseases and surely it would cure the boy's convulsions. However, with the proper administration of antimalarial drugs the boy narrowly escaped death.

These are the daily happenings in the villages. Penicillin, one of the most effective antibiotics, is still imported from other countries. Occasionally this drug vanishes from the market and such sort of misuse will surely worsen the situation.

It is, therefore, high time that our Association and the Government of India should take proper steps to implement the control for sale of these drugs with strong hands. The sale of these drugs must be made against the prescriptions of registered medical practitioners from a licensed medical store.—I am, etc.

27-7-1950. SAROJ KUMAR CHATTERJEE, L.M.F.
Dasdighi, Bankura, W. Bengal.

PROS AND CONS OF AMALGAMATION OF THE I.M.A. AND A-I.M.L.A.

Sir,—The letter of Dr. U. B. Narayan Rao in the May issue of the Journal appears to be very ambiguous and very dangerous. It is not clear what exactly Dr. Narayan Rao wants "those responsible for the management of the I.M.A." to do "by a frank and friendly gesture which will satisfy the rank and file of the profession."

It is neither clear whether Dr. Narayan Rao and his friends are in favour of:

(1) amalagmation with the I.M.A., or,

(2) a new party of Licentiates in the I.M.A. with guarantees, reservations, chairman, chief whip with allowance, etc., either in lieu of or in addition to the separate existence of the A-I.M.L.A., or,

(3) starting a third organization—to be called the General Practitioners' Association "to have a healthy rivalry with the I.M.A."

It is also difficult to understand the first part of 2nd paragraph of Dr. Narayan Rao's letter "It is important to know the views of those *who object to amalgamation*. It must be admitted that they are equally sincere in their convictions. *They are not against the amalgamation but assert* . . . ."

It appears to me that they are really against amalgamation.

We have been discussing amalgamation off and on since 1933, and this talk has gone on for over 17 years. Numerous points have been discussed—objections have been met. New objections have been produced and these also have been met. The I.M.A. was asked to change its Constitution and this has been done. But strangely enough the A-I.M.L.A. has not been able to change its own Constitution to make amalgamation possible, even though according to Dr. Narayan Rao "the A-I.M.L.A. at its Conference in Bombay in 1947 voted solidly for amalgamation with the Indian Medical Association."

The truth of the matter appears to be that an influential and active group in the A-I.M.L.A. is determined against amalgamation and have been nullifying the efforts of the others in favour of amalgamation. In the I.M.A., the overwhelming majority of the licentiates and graduates would welcome amalgamation; the I.M.A. has taken every possible step for this to happen and so far without success. But the opponents of amalgamation in the A-I.M.L.A. can always trot out the old arguments, and sometimes new ones, in season and out of season and Dr. Narayan Rao appears to be in favour of these arguments. Let us analyse these arguments.

1. "The time is not ripe yet":—It was in 1933 that Dr. Narayan Rao, along with other leaders of the A-I.M.L.A., like Dr. Viswanathan, Dr. Ram Narayanlal, and others thought "it was high time to have the amalgamation accomplished" and a resolution was passed at the 26th Conference of the A-I.M.L.A. to that effect. The ball was thus started rolling and the first approach was made by Dr. Viswanathan on 15th February, 1934 to Dr. K. S. Ray—the then Secretary of the I.M.A. Since then many communications have passed between the two organizations and many meetings have been held between the two organizations and many meetings have been held between their representatives. On many an occasion, the leaders of the A-I.M.L.A. had declared publicly, from platform and through their press, that the time was ripe for amalgamation, that amalgamation was an urgent necessity and amalgamation should take place without any stipulations and conditions. But in the year of Grace 1950, after 17 years of discussion, the sentiment is trotted out "Time is not ripe yet". Perhaps the time will only be ripe, if and when, according to the laws of nature, the licentiates are no more; provided, of course, the Governments do not start new medical schools in the meantime, against the opposition of the medical profession.

2. "The I.M.A. is not supporting the cause of the licentiates as *seriously* as the A-I.M.L.A. especially regarding the I.M.C. Act amendment and the problems of medical and civil medical services." (Italics mine).

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The old charge repeated *ad nauseam* by the opponents of the amalgamation used to be that the I.M.A. has done nothing for the licentiates. Dr. Narayan Rao has modified it, and made it more subtle, and though he is the mouthpiece of the prosecutors, he does not think it is up to him to prove the charge. He thinks, perhaps, that the onus of disproving the charge lies with the defence, and as there are no quantitative lists available either chemical or physical—by which the degree of "seriousness" of the I.M.A. and I.M.L.A. could be measured and compared, he will get away with his charge.

I leave my readers to judge the matter on merits.

I plead guilty to one charge, however, in this connection. Satyagraha had been suggested. Some of us refused to be a party to such a programme and it was dropped.

3. "Few top-rankers in the profession have completely monopolised the I.M.A. neglecting the interests of the rank and file....."

This is a new charge and the solution suggested is partly old and partly new. The new suggestion is to create a new body—"General Practitioners' Association so as to have a healthy rivalry with the I.M.A." Fancy Dr. Narayan Rao creating a third organization, in considering the pros and cons of amalgamation of two existing organizations. I need say nothing more on this suggestion. The old suggestion is that "if at all there is to be amalgamation that the class (? Licentiates) should have a guaranteed representation in the I.M.A. both at the Centre as well as its branches for a stipulated period". This charge and its solutions are so absurd that it hardly needs any comment from me but for the fact that they are so often repeated. The constitution of the I.M.A. and the procedure for election of office-bearers and various representatives are so clearly democratic that the few so-called top-rankers could be removed in no time if the rank and file so wished it. It is a pity that a man of Dr. Narayan Rao's position who has been a top-ranker in both organisations, should endorse such a sentiment.

More often than not, important jobs have been thrust upon unwilling persons. Be it said to their credit, however, that when such people were persuaded to accept these jobs, they have tried to give of their best, not minding loss of income and spending out of their pockets, inspite of other obligations and physical hardships. To name only a few, Dr. K. S. Ray was Hony. General Secretary for 9 years since the inception of the I.M.A., Capt. P. B. Mukherji was General Secretary for 6 years, Late Sir Nilratan Sarkar was Editor of the Journal for years and was succeeded by Dr. K. S. Ray—who is still carrying on the work, inspite of failing health. It is to the credit of the I.M.A. that so far there has been no party politics or jockeying for power or office and I hope this tradition will continue for all times.

We have enough of party politics in the political circles. Let us not import them in the medical sphere. Guaranteed representation, reservation etc. will defeat the very objectives Dr. Narayan Rao and his friends are professing to have—namely abolition of the class system, representation on basis of equality etc.

4. "To have a basic minimum subscription of the I.M.A." The Central Fund Contribution in respect of each member may be considered the basic minimum subscription of the I.M.A., and the branches being autonomous can and do charge extra—depending on the amenities they provide for their members. It must be realized that if the I.M.A. has to fulfil even partially its objectives, it must have a certain minimum income, and if it has to do more and more, its minimum income must go in increasing.

It is not clear whether Dr. Narayan Rao wants to create a party in the I.M.A. from now on or after the amalgamation, with its own chairman, chief whip with allowances and representatives in the Provincial Branches. In my humble opinion, no greater disservice could be given to the medical profession *as a whole* by creating such parties on such lines. I hope my licentiate friends will not touch such a proposal, even with a barge pole. Dr. Narayan Rao on behalf of his friends have made an appeal to "those who shape the destinies of the I.M.A. to-day, dubbed rightly or wrongly as monopolists and king makers", that "they should keep a watchful eye on the interest of the profession as a whole and that by a "frank and friendly gesture", "satisfy the rank and file of the profession". I wish he had been clear and definite about the "frank and friendly gesture and given details of what he wanted."

I have been a fairly active member since 1932, and as far as I know there has been no king or king maker in the I.M.A. The I.M.A., as a democratic body, has been working not only in the interest of the profession as a whole, but also for the country and its people. Fortunately for the I.M.A. there has been no differences of opinion amongst the overwhelming majority of its members—graduates and licentiates alike. Critics and dissentients there are and there will always be. It must be admitted, however, that the I.M.A., inspite of its devoted workers, has not been able to achieve much success—either for the country or its people or for its members—whether graduates or licentiates: whether in service or in private practice. The causes of failure are due to the inherent difficulties of the political and social situations and its own weakness. The I.M.A. is not strong enough—either in its membership or resources. Until and unless the whole profession is behind it solidly and intelligently, its voice cannot have sufficient effect—either on the public or the Governments. Mere sincerity of purpose on the part of a few—working in opposite camps and in opposite directions—without wisdom and ability—is not likely to achieve the goal. Whatever may be the differences of opinion amongst individuals, decisions arrived at in a democratic way, after thorough study and discussion of problems, must be accepted by all and given effect to. The choice before the profession is simple. It should not remain divided or be further subdivided. It can either hang together or hang separately.—I am etc.

(Dr.) S. C. Sen.

New Delhi,
19-9-1950.

CURRENT MEDICAL LITERATURE

Rheumatoid Arthritis

The following is the summary from the Report by the Scientific Advisory Committee of the Empire Rheumatism Council on a controlled investigation into the etiology and clinical features of rheumatoid arthritis:

532 controlled persons, comparable in age, sex, and civil state, were investigated in regard to the significance of a variety of factors widely alleged to be of aetiological significance. In addition the opportunity was taken of investigating the clinical pattern of the disease.

In contrast to the clinical pattern of the disease, which was found to be in keeping with the standard textbook description, the investigation into alleged aetiological factors produced largely negative results. Most factors investigated were found to occur as often in controls as in patients.

Information was obtained which suggests that further study is warranted into the influence of the familial factor, the effects of cold and damp and climate, abnormalities of the peripheral circulation, and the relation of pregnancy and the menopause to the aetiology of rheumatoid arthritis.—*Brit. M. J.*, **1**:804, 1950.

Terramycin: Some Pharmacological and Clinical Observations

Herrell and others (*Proc. Staff Meet. Mayo Clin.*, **25**: 183, 1950) give in the following lines the summary of their observations on the clinical and pharmacological study of terramycin:

Terramycin appears to be a relatively nontoxic polyvalent antibiotic agent. It has a fairly wide range of antibacterial activity. Its activity is similar to that of aureomycin.

Terramycin is fairly readily absorbed after oral administration. Following the oral administration of single doses of 1 gm., the serum content of terramycin is maintained at a rather constant level for a number of hours. Complete disappearance of activity from the serum may not occur for twenty-four hours. Therapeutically effective serum levels of terramycin are maintained by the administration of 1·0 to 1·25 gm. of terramycin every six hours by the oral route. Unlike aureomycin, terramycin does not appear to diffuse well into the cerebrospinal fluid when therapeutically effective blood serum levels are maintained. Terramycin diffuse readily through the placenta and is available in the fœtal circulation. When therapeutically effective amounts are present in the blood serum, diffusion into the pleural fluid occurs. Terramycin appears to be concentrated in the hepatic system and to be excreted in the bile. Patients receiving terramycin excrete fairly large amounts of the material in the urine. A great deal of terramycin administered by the oral route is not absorbed but is excreted in the fæces. This high concentration of the drug in the fæces results in remarkable alteration of the bacterial flora of the intestinal tract.

Preliminary clinical trials with terramycin are encouraging. Included among the conditions which have responded in a satisfactory manner are pneumonia, acute follicular tonsillitis and septic type of sore throat, as well as infections of the urinary tract, owing to susceptible organisms. In 1 case septicemia owing to Escherichia coli responded in an eminently satisfactory manner. The organism was slightly more sensitive to terramycin than to other antibiotic agents. One patient, critically ill with septicemia caused by Bacteriodes, made a complete recovery on treatment with terramycin. One patient with severe erythema multiforme appeared to improve after the administration of terramycin. No improvmeent was noted after the administration of terramycin to a patient with herpes zoster. These clincal trials are only preliminary, but it would appear that in terramycin we have an additional agent in the therapeutic armamentarium for certain infectious diseases.

Aureomycin on the Bacterial Flora of the Intestinal Tract

Dearing and Heilman (*Proc. Staff Meet. Mayo Clin.*, **25**:87, 1950) write that aureomycin is the most effective substance they have found for removing bacteria from the intestinal tract of man.

To prepare patients for intestinal surgery they recommend aureomycin orally, 750 mg. four times daily for three and a half days. The toxic actions of aureomycin in doses of 750 mg., administered four times daily, consisted, in cases in which they occurred, of nausea, vomiting and mild diarrhœa. The nausea can be lessened in most cases by giving preparations of aluminum hydroxide orally, or by feeding the patient at the same time the aureomycin is administered.

Due care should be used in giving aureomycin to patients who have duodenal ulcers. Their attention has been called to two patients not in their series, whose duodenal ulcers perforated after they had received aureomycin.

The following pre-existing conditions hindered or prevented removal of all susceptible culturable bacteria from the intestinal tract: (1) perforated intestinal lesions associated with abscess cavities, (2) intestinal fistulas of various types, (3) intestinal obstruction. These conditions probably interfered with contact between the antibiotic and the micro-organisms.

Aureomycin in the Treatment of Herpes Zoster

Binder and Stubbs (*J.A.M.A.*, **41**:1050, 1949) in reporting on the use of aureomycin in the treatment of herpes zoster write: 500 mg. of aureomycin was given six-hourly for two days to four patients with herpes zoster. In three cases the results were dramatic: there was relief from pain within twenty-four hours; in two cases the rash dried and disappeared within five days; in one case, in which pain persisted for three to four days, the rash disappeared in seven days. In the fourth case, that of an eleven-year old girl, with temperature of 102°F., 250 mg. of aureomycin were given six-hourly; there was dramatic relief of pain within twenty-four hours and no further elevation of temperature; the rash subsided within four days. Unfortunately in this case acute poliomyelitis developed five days later. The authors state that it was by accident that the possible beneficial effects of aureomycin in herpes zoster were made known to them: a patient receiving x-ray therapy for herpes zoster was given aureomycin for another condition, and within twenty-four hours there was dramatic relief of the herpes; it was not known whether this was due to x-ray therapy or to the aureomycin. In conclusion it is stated that "the report is submitted in the hope that further investigation will produce equally good results in the treatment of a disorder which, in the past, has been so refractory in resisting all forms of therapy."

Night Cramps and Quinine

Several observations have now been made that the administration of quinine sulphate will relieve muscular cramp occurring during the night. The action of quinine on skeletal muscle is not widely known, but it is similar to that of its near relation quinidine on cardiac muscle. Quinidine is regularly used to diminish the excessive activity of the auricles in fibrillation and to restore a normal rhythm; this effect is due to a lengthening of the refractory period and is accompanied by a slowing of conduction. A similar action is exerted in skeletal muscle by quinine. Harvey (*J. Physiol.*, **95**: 45, 1939) has shown that the ability of the muscle to respond to a tetanic stimulation is diminished because of an increase in the refractory period of the muscle fibres. The excitability at the motor end-plate is lowered by quinine, and the effect of a tetanic stimulation to facilitate conduction at the endplate is weakened or abolished. The response of normal mammalian muscle to injected acetylcholine is abolished by quinine, largely due to the curare-like action of the drug. These observations establish beyond doubt that the use of quinine for night cramps has a rational basis. Moss and Herrmann (*J.A.M.A.*, **115**: 1358, 1940) reported successful results in 1940 and have recently described a further 20 cases (*Am. Heart J.*, **35**:409, 1938). These patients complained of spasms in the calf muscles at night sufficiently severe to disturb sleep, sometimes for months, and they were given 3 gr. (0·2 g.) of quinine sulphate twice daily in a capsule. Relief was obtained in 24 hours. When the capsules containing the quinine were replaced by capsules containing a placebo the cramps returned. After treatment for periods as long as 10 weeks it often became possible to discontinue the quinine without a return of cramps. —*Brit. M. J.*, **1**:478, 1950.

Comparison of Antimalarial Drugs

Steiner (*J. Christian M. A.*, **25**:91, 1950) gives in the tables below a comparison of the action and therapeutic value of the following antimalarial drug: (*a*) quinine and the other cinchona products, (*b*) atebrin, (*c*) paludrine, (*d*) the 4-aminoquinolines: chloroquine, oxychloroquine, sontochin, camoquin, (*e*) the 8-aminoquinolines: plasmochin, pertaquine, isopentaquine.

It has been concluded that chloroquine is superior to the other drugs as an antimalarial drug and is the drug of choice for routine therapy.

The 8-aminoquinolines are very toxic and should only be used to destroy gametocytes in relapsing cases. They should always be used cautiously. Pentaquine and isopentaquine are preferable to plasmochin.

Table 1—Showing Summary of the Therapeutic Activity of Antimalarial Drugs

Name of Drug	*Quinine*	*Atebrin*	*Paludrine*	*Chloroquine*	*Plasmochin*
Action against preerythrocytic forms ..	none	none	some	none	Some action with toxic doses
Action against asexual erythrocytic forms ..	strong	strong	strong	strong	Moderate action in the case of *P. vivax* and *P. malariae*. No action in the case of *P. falciparum*
Action against *P. vivax* gametocytes ..	weak	strong	Does not kill gametocytes; prevents development of them in mosquito	none	strong
Action against *P. falciparum* gametocytes ..	none	none	Does not kill gametocytes, but prevents their development in the mosquito	none	strong
Action against exo-erythrocytic forms ..	none	none	some	none	Strong especially when administered concurrently with quinine
Stops acute attacks ..	moderately well	very well	very well	very well	of *P. vivax and P. malariae* only, in toxic doses
P. vivax relapses ..	Frequent; occur 1-2 weeks following treatment	Less frequent than with quinine; occur 4-6 wks. following treatment	About as frequent as with atebrin; occur 4-6 weeks following treatment	Less frequent than with atebrin or paludrine; occur 7-11 wks. following treatment	Greatly reduced, especially when given concurently with quinine
P. falciparum relapses ..	Frequent; occur 1-2 wks. following treatment	not frequent	usually not frequent	usually do not occur	
Causative prophylactic action	none	none	some	none	Occurs with toxic doses
Suppressive prophylactic action	moderate	strong	strong	very strong	Occurs with toxic doses

TABLE 2—SHOWING LOCALISATION AND ELIMINATION OF ANTIMALARIAL DRUGS

	Quinine	*Atebrin*	*Paludrine*	*Chloroquine*	*Plasmochin*
Localisation of drug in tissues	Slight	Marked	Marked	Marked	Moderate
Elimination of drug ..	Rapid	Very slow	Rapidly metabolised, but metabolic product is active	Very slow	Rapid

TABLE 3—SHOWING SUMMARY OF DOSAGE AND TOXICITY OF ANTIMALARIAL DRUGS

Name of drug	*Adult Therapeutic Dosage*	*Suppressive Dosage*	*Toxicity*
Quinine	10 gr. t.d.s. until symptoms subside, followed by 15 gr. daily for 6-8 weeks	10 gr. daily	Moderate
Atebrin	3 gr. every 6 hrs. for 5 doses, followed by 1½ gr. t.d.s. for 6 days	1½ gr. daily	Usually low in therapeutic doses
Paludrine	1½ to 3 gr. t.d.s. for 7-14 days, followed by suppressive dosage	1½-3 gr. twice weekly or 1½ gr. daily	Extremely low
Chloroquine ..	15 gr. initially, followed by 7½ gr. in 6 hrs. followed by 7½ gr. once daily for 2 days.	7½ gr. once weekly	Very low
Plasmochin ..	Plasmochin is not used as a therapeutic agent. It is only used to destroy gametocytes: 1/3 gr. every 4-5 days till the gametocytes disappear	Plasmochin is not used as a suppressive agent	Very high

VITAMIN B_{12} IN PERNICIOUS ANAEMIA

UNGLEY (*Brit. M. J.*, **2**:1370, 1949) writes that seventy-three responses to single doses of Vitamin B_{12} injected intramuscularly were observed in 53 patients with pernicious anæmia in relapse.

Doses were graded logarithmically from 1·25 to 160 mg. Conclusions are based on the means of a number of responses at each dose level. Reticulocyte responses were compared with the "expected" response to liver extract according to Isaacs and Friedman (1938), but a better yardstick was the increase of red blood cells in 15 days.

While doses of 1·25 mg. had little or no effect, 2·5 mg. produced a definite but small response. Responses to 5 and 7 mg. were on average somewhat below, and to 10 mg. just up to expectation, both in respect to reticulocytes (Isaacs and Friedman, 1938) and to increase of red blood cells in 15 days (Della Vida and Dyke, 1942, formula for "average" group).

Only in this limited sense can 10 mg. be regarded as a minimal effective dose. Large doses produced still greater increase of red blood cells in 15 days, the mean response being roughly proportional to the logarithm of the dose, at least in the range 5 to 80, or possibly even 160 mg. From a formula devised to express this relationship the expected response to any dose within the range was calculated. Most of the responses actually obtained did not differ from the expected response by more than 330,000 per c.mm.

Further tests at high and low levels of dosage are needed to complete the dose response curve, which will probably be sigmoid in form, rising gradually, then steeply, from the threshold dose, and flattening out to a horizontal level when supramaximal doses are reached.

Maintenance doses of 10 mg. of Vitamin B_{12} every two weeks were satisfactory in 18 out of 21 patients followed for six to 15 months. The exceptions were three patients whose sore tongue was not completely relieved, one having macrocytosis in addition. Six women developed iron deficiency at eight to 15 weeks, relieved by ferrous sulphate.

Fresh neurological symptoms did not develop. Direct evidence of an effect in subacute combined degeneration is published elsewhere (Ungley, 1949).

ARTHRITIS AND THE ADRENAL CORTEX

SELYE (*Brit. M. J.*, **2**:1129, 1949) writes that a technique has been developed which permits the production of an acute arthritis and periarthritis by the local injection of formaldehyde into the vicinity of joints. If large doses of formaldehyde are administered the acute stage is followed by a very prolonged chronic arthritis and periarthritis, characterized by moderate œdema and very pronounced connective-tissue proliferation, with stiffening of the joint and hyperæmia of the surrounding skin. The resulting chronic granuloma is self-maintaining, as it continues to proliferate for weeks after the administration of the local irritant.

This "formalin-arthritis" is slightly aggravated by pretreatment with desoxycortone or crude anterior-pituitary preparations; on the other hand it can be almost completely

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an antagonistic relationship between D.C.A. or crude anterior pituitary preparations on the one hand and cortisone or purified A.C.T.H. on the other.

It is rather probable that in the final analysis the inhibition of "formalin-arthritis" by A.C.T.H., cortisone, and the alarm reaction is due to the effect of cortisone-like gluco-corticoids upon the directly injured tissues. The mechanism of this response is still unknown. It may be related to the anti-hyaluronidase effect of gluco-corticoids (Seifter, Baeder, and Dervinis, in the press), or to their well-known anti-histaminic action. It has long been assumed that histamine-like compounds are liberated from tissues at the site of injury, and that these play an important part in inflammation. It is noteworthy, therefore, that the phenomena of "crossed resistance" which can most effectively be compared by the alarm reaction are also markedly inhibited by anti-histaminic drugs (*e.g.*, lung œdema, anaphylactic and anaphylactoid reactions). In view of this observation it would be interesting to examine the value of anti-histaminics in some of the clinical conditions (*e.g.*, rheumatic fever, rheumatoid arthritis, and lupus erythematosus) which have been effectively combated with cortisone or A.C.T.H.

It is particularly difficult to explain the apparent antagonism between D.C.A. or L.A.P. on the one hand and cortisone or A.C.T.H. on the other. Perhaps D.C.A., being a close chemical relative of cortisone, prevents the latter from reaching its target organs; this might be due to some mechanism of "competition for the substrate", such as has been demonstrated to exist between adrenaline and certain adrenaline derivatives, or vitamins and their corresponding anti-vitamins. However, this possibility is meanwhile purely hypothetical.

The Artificial Kidney

In spite of much effort and ingenuity it is fair to say that the artificial kidney is still only an ideal and not an accomplished fact. Murray, Delorme and Thomas (*Brit. M. J.*, **2**:887, 1949) describe one form of "artificial kidney"; similar devices have been used by Kolff and Alwall. In all of them heparinized blood is led through a long cellophane tube immersed in a bath of fluid in which salts of sodium, potassium calcium, and magnesium have been dissolved to simulate the electrolyte pattern of normal plasma. The cellophane membrane allows the passage of urea, electrolytes, and water, but not of protein or of red cells; as the blood flows along urea diffuses out into the bath fluid, while electrolytes diffuse outwards or inwards depending on whether their concentration in the actual plasma is greater or less than that in the "ideal plasma ultrafiltrate" of the bath fluid. In this way the blood leaves the apparatus having lost some of its diffusible non-protein nitrogen and having had its electrolyte composition restored to a somewhat arbitrary "normality".

The principle is simple enough, but its translation into practice brings difficulties to the doctor and real hazards to the patient. If the cellophane tube is made long enough to allow the dialysing process to be anything like complete, then force and some sort of pump has to be introduced into the apparatus. Kolff uses a helical pump, having found a satisfactory way of joining the stationary tube in a vein to the tube wound round a rotating drum. Murray and his colleagues incorporate a syringe pump with rubber inlet and outlet valves, and claim that the use of large amounts of heparin will prevent clotting on the valve flaps. Again, if the tube is long its internal volume may be appreciable in relation to the volume of blood which can be safely withdrawn, however temporarily, from the patient. The authors overcome this difficulty by "priming" their apparatus with suitable blood. Besides such difficulties, which are inherent in the apparatus, there are the further dangers of hæmorrhage in a patient whose blood has to be made incoagulable by heparin throughout the period of dialysis. Also the anuric patient cannot protect himself against dehydration or water overload, and these may easily arise if the composition of the bath fluid is unsuitable.

The dangers of the artificial kidney are admitted by its makers and users, but they argue that acute renal failure is so serious a conditions that desperate measures may be justified. This contention is based on the assumption that acute renal failure carries a very grave prognosis, and figures can be found which support this view. Several critical surveys have lately appeared, however, which show that the high mortality of anuria is largely attributable to faulty treatment, and that conservative treatment gives good results provided that excessive amounts of fluid are not given. Muirhead and his colleagues (*Arch. Int. Med.*, **83**:528, 1949) found that renal function recovered spontaneously in most patients with anuria "provided they are not overloaded with salt and water in the vain attempt to stimulate urine production." Similar results were reported by Stock, (*Am. J. Med.*, **7**:45, 1949) who found that the mortality in 22 patients with anuria was only 50 per cent and that in the majority of the 11 fatal cases fluid overload was a more important feature than nitrogen or other retention. Even more convincing is the experience of Bull and his colleagues (*Lancet*, **2**:229, 1949) at the London Postgraduate School, who have advisedly given up the use of the artificial kidney in favour of a high-calorie low-protein diet and a controlled fluid intake of a litre per day. They have had good results with this regime, and it can be safely carried out by those who lack the technical knowledge and fortitude to maintain a patient on the artificial kidney.

It seems clear that until artificial kidneys become safer they have no place in the treament of acute renal failure. To say this is not to suggest that the work done in this field has been wasted or that it should not continue. Already the excretory functions of the kidney can be artificially performed for a short time, not only by the various forms of artificial kidney but also by such expedients as peritoneal irrigation (Fine and others—*Ann. Surg.*, **124**:857, 1946) or intestinal intubation (Black and Staburg—*Brit. M. J.*, **2**:1101, 1948). All these methods require the use of large volume of irrigating fluid, since the excreting surfaces have no power to concentrate metabolites; they can therefore be used only in special clinics, where a close watch can be kept on the electrolyte composition of the plasma. So far no artificial method has been found for performing the homeostatic, as opposed to the excretory, functions of kidney. This is a serious matter, for while it is logical to suppose that continued failure of renal excretion would cause death, the observed facts indicate that in acute anuria immediate danger arises from the patient's lack of any effective defence against overloading with water and salt. Bull and his colleagues (*loc. cit.*) believe that water intoxication is a real risk in such patients. When patients

with anuria have already been maltreated by large infusions, a policy of deliberate and controlled dehydration may be indicated, and intestinal perfusion with 5 per cent lactose, as used by Brun in Copenhagen, may be a suitable way of doing this.—*Brit. M. J.*, **2**:920, 1949.

Hyperparathyroidism

Hyperparathyroidism is not a common disorder, but it is one which as a rule can be recognized with certainty and in which surgical treatment rapidly restores the disordered physiological process to normal. Black (*Surg. Gynec. & Obstet.*, **87**:172, 1948) in a report from the Mayo Clinic on 63 cases of proved hyperparathyroidism collected over 18 years, has discussed the main points of diagnosis and treatment. The cause was a single adenoma in 56, multiple adenomata in three, and diffuse primary hyperplasia in four cases. The patients' ages varied from 14 to 68 years and the duration of symptoms from one week to 27 years. It is interesting to note that less than 40 per cent of these patients had generalized osteitis fibrosa cystica, while nephrocalcinosis or urinary lithiasis was demonstrable in over 70 per cent. In adults not receiving large doses of vitamin D, the finding of excessive calcium in the blood and urine, with low phosphorus values in the blood and high values in the urine, is pathognomonic, and in such cases the surgeon must be prepared to search the neck and mediastinum until abnormal parathyroid tissue is found. Black advises first a careful search of the cervical and posterior mediastinal regions on both sides. The fact should be borne in mind that 80 per cent of adenomata are found near the lower poles of the thyroid gland. In cases of diffuse primary hyperplasia only a small amount of parathyroid tissue should be left. Should no abnormal tissue be found and subsequent chemical tests indicate continued parathyroid overactivity, an adenoma should be sought in the anterior mediastinum after splitting the sternum. If it is not found there it may lie in the thymus gland, and this should be removed. Black has seen no recurrence after successful operation. About 50 per cent of patients develop tetany after operation, and this is treated with large doses of vitamin D and calcium.—*Brit. M. J.*, **1**:174, 1950.

Glycerine Osmotic Drainage in Peritonitis

Smith and Smith (*Southern Surgeon*, **15**:18, 1949) say that in a previous paper one of them advocated the intraperitoneal use of pure glycerine as an osmotic and antiseptic agent in peritonitis. They now offer their evaluation of glycerine osmotherapy after using it in the treatment of peritonitis for over ten years.

The technique of intraperitoneal glycerine osmotherapy varies with the extent of the infection. With localized soiling, as from a gangrenous gallbladder or appendix, without wide diffusion of peritonitis, a glycerine swabbing of the contaminated area and the insertion of a Kehrer cigarette drain, the gauze of which has been saturated with glycerine, is all that is needed. When one encounters diffuse peritonitis, with agglutination of intestinal loops and pocketing of pus, a more generous use of glycerine is indicated. The loops of intestines are gently separated to permit aspiration of pus collections and free laving with glycerine. As much as eight ounces of autoclaved, U.S.P. glycerine is poured over the inflamed intestines and at least one osmotic drain is placed in the crater of the infection. Unlike normal peritoneum, an œdematous wound is not irritated by full strength glycerine since fluids extracted from the tissues seem to dilute the glycerine in contact with the serous membrane.

The authors present a few case reports to illustrate the possibilities of osmotherapy in patients desperately ill with diffuse peritonitis.

In the concluding summary the authors stress that laboratory investigation and clinical experience indicate that glycerine has several useful properties which make it suitable for intraperitoneal use in the treatment of acute diffuse secondary peritonitis.

By osmosis, glycerine induces drainage from infected tissues.

It has an extended antiseptic and an adequate bactericidal action on the aetiologic bacteria of peritonitis in concentrations that do not prevent normal functional activity of the body cells.

By limiting the extent, and shortening the duration, of infection it tends to restrict the formation of residual adhesions.

Glycerine absorbed from the peritoneum has a protein-sparing action, reduces hypoglycæmia and prevents formation of acetone bodies.

It causes an increase in the number of leukocytes and their protective localization within the abdomen.

Used in conjunction with a mechanical drain it prevents the latter from adhering within the abdomen and avoids the skin maceration and superficial infection usually associated with prolonged pus drainage.—*U.S.A. Surgical News Letter.*

Haemodynamics of Pregnancy

Kellar (*Brit. M. J.*, **2**:332, 1949) at a meeting of the Edinburgh Obstetrical Society on May 11, with the president, Dr. E. C. Fahmy, in the chair, presented a symposium on the "Hæmodynamics of Pregnancy". His critical review of the subject was supplemented by four short papers.

Dr. Hilary Hamilton gave a brief description of previous experimental work and then analysed the changes in cardiac output during normal pregnancy in 68 women. Output was determined by the Cournand technique of right heart catheterization. Experimental work now in progress at the Simpson Memorial Maternity Pavilion was concerned with the cardiac output in cases of toxæmia all showing some degree of hypertension. Preliminary results in 44 cases showed that they fell into fairly distinct groups. Pregnant patients with "fixed" essential hypertension (10 cases) showed no alteration in cardiac output from the curve found in normal pregnancy. In 6 cases of "fixed" essential hypertension with superimposed pre-eclampsia a rise in cardiac output was noted. There was also an increase in cardiac output in 11 cases of "labile" hypertension.

Varying results were observed in 17 cases of pre-eclampsia; 13 had a mild or marked increase in output, and this usually exceeded the increase seen in the two hypertensive groups; in 4 cases the cardiac output was within the normal limits for the duration of pregnancy. The changes in cardiac output in the cases of pre-eclampsia did not appear to bear any clear-cut relationship to the clinical severity of the toxæmia. No explanation of these results could be put forward at the present time, but it was hoped that future work would help to clarify the situation.

Blood Volume and Blood Flow—Dr. Rachel White contributed two short papers, one on blood volume in pregnancy and the other on limb volumes in pregnancy. In the first

paper she outlined the method used and the results obtained in the investigation of 10 normal non-pregnant women, 56 women at various stages of normal pregnancy, and 10 women in the first week of the puerperium. She showed that the increase in blood volume during pregnancy was approximately 23 per cent—a result comparable with those of previous investigators. This increase occurred mainly during the second half of pregnancy and was maintained for the first seven days of the puerperium. She also gave a preliminary survey of the results of investigations now being carried out during pregnancies complicated by hypertension and pre-eclampsia. From the results it appeared that the blood volume in cases of hypertension ("labile" and "fixed") was comparable with that in normal pregnancy, while in cases of pre-eclampsia it was lower than normal.

The second paper was concerned with a study of the limb volumes of 15 patients during the second half of pregnancy. She described the method, which was based on the principle of water displacement, and said that records were kept at 2-4 weekly intervals during the pregnancy and at seven days and six weeks after delivery. Of the 15 cases, four had a normal pregnancy with a variation of 0·5 to 3·8 per cent in limb volumes; 7 cases developed a mild to moderate degree of toxaemia with an increase of at least 6 per cent in all their limb volumes, a 6 to 7 per cent increase appearing to coincide with the presence of "pitting" œdema. The remaining 4 cases showed an increase of up to 9 per cent in at least one limb volume with no other manifestation of toxæmia. She also showed that the increase in volume during pregnancy appeared to be more marked in the hand used less frequently—*i.e.*, the left hand in right-handed patients.

Dr. Catherine Burt presented a preliminary report on blood flow and finger temperatures in 20 pregnant patients (8 normal, 7 pre-eclamptic, and 5 hypertensive) compared with those in a group of non-pregnant controls. Records of resting forearm blood flow made in the later weeks of pregnancy showed an increased flow in normal pregnant patients with pre-eclamptic toxæmia or hypertension; in these cases the average resting forearm blood flow was twice that of the control group. In all the pregnant patients a fall in the average forearm blood flow occurred following delivery, but the figure remained above that of the non-pregnant group for the first few weeks of the puerperium. During reflex vasodilatation tests forearm blood flow was more variable and showed a greater average rise in pregnant than in non-pregnant patients, this increase being most evident in patients with pre-eclamptic toxaemia.

At an environmental temperature of 17°C. non-pregnant women and women in the first trimester of pregnancy showed peripheral vasoconstriction as evidenced by a low resting blood flow in the hand; as pregnancy advanced the hand blood flow showed a gradual rise up to the time of delivery. A state of cutaneous vasodilatation, as shown by a resting finger temperature of over 30°C., was found in 19 out of 20 cases in the later weeks of pregnancy and in all 17 tested in the first eight weeks of the puerperium. In non-pregnant volunteers exposed to the same environmental temperature (15·25°C.-22·5°C.) the average finger temperature was 24·7°C. This preliminary work indicated a tendency to muscular and cutaneous vasodilatation in the upper limbs during the later months of pregnancy.

Influence of Posture on the Urinary Tract in Pregnancy

Parks and Puzak (*Am. J. Obstet. & Gynec.*, **55**:636, 1948) made serial pyelo-ureterograms of pregnant women in various positions, and interpreted these pyelo-ureterograms as indicating that posture influences the urinary tract in pregnancy in the following manner:

1. There is no remarkable change in the position of the kidneys or in the contour of the abdominal ureters with changes in posture.

2. The pelvic portions of the ureters which pass through the base of the broad ligaments are carried upward and downward with changes in position of the gravid uterus.

In an upright position and with good abdominal support, many uteri rotate to the right. This occurs irrespective of the position of the fœtus. When the uterus rotates, the transligamentous portion of the ureter is carried along with the large uterine vessels and Mackenrodt's ligaments whether or not great stretch, torsion, and reduction in the lumen of the right ureter brought about by dextrorotation has not been demonstrated. This is a possible explanation for the greater degree of dilatation usually present in the right ureter.

Contrast medium in the kidney pelves and ureters becomes diluted and is eliminated more rapidly when the weight of the uterus is displaced upward by 15-degree elevation of the foot of the bed than with the patient in an upright position.

A generous fluid intake plus rest in bed for twenty to forty-five minutes once or twice daily, preferably with the hips higher than the shoulders, will avoid prolonged urinary stasis and help prevent infection.

Pregnant patients with costovertebral pain due to spasm and dilatation of partially obstructed ureters receive relief from elevation of the foot of the bed. The exact mechanism which produces this relief is not known, but the theory is advanced that upward displacement of the gravid uterus releases tension and torsion of the pelvic portion of the ureter, thereby removing spasm and obstruction to urinary flow.

Prematurity

Morris (*Lancet*, **1**:260, 1950) at the first annual joint meeting of Manchester and Liverpool Pediatric Clubs spoke on the causes and prevention of prematurity. The commonest recognisable causes were toxæmia of pregnancy, antepartum hæmorrhage, plural pregnancy, and hydramnios; but in some 40 per cent of cases no definite cause could be elicited. Malnutrition might be an associated, if not the primary ætiological factor. The prophylaxis of prematurity was a matter for sociological study and communal action. The provision of many more antenatal beds was necessary to enable the obstetrician to institute treatment of toxæmia of pregnancy at its very commencement, and to allow of impatient study of those conditions which appeared to predispose to prematurity. Not all the beds need be in hospitals; antenatal rest-homes would be particularly valuable.

Dr. J. D. Hay (Liverpool) discussed high-protein feeding for the premature infant. He described his experience at Mill Road Hospital where three groups, each of 15 premature infants, had been studied. Each group received the same routine care, and all infants were fed with expressed breast-milk (E.B.M.) until breast-feeding was established. 'Hepovite' was added to E.B.M. (gr. 18 to the oz.) in group 1 so as to give an additional 2·8 per cent amino-acid content. Group 2 received an additional 4·4 per cent 'Dextri-maltose',

and group 3 E.B.M. alone. Observations of the weight-gains, the total plasma-protein levels, and the hæmoglobin levels showed that the addition of hepovite had no influence on the rate of weight-gain; that the plasma-protein levels rose somewhat during the first few weeks when maximum doses of hepovite were given, but that these levels were not maintained; and that the hæmoglobin levels in three groups were similar.

Dr. Sylvia Guthrie (Manchester) reviewed the cases of 280 premature babies admitted in the first two weeks of life to the Duchess of York Babies' Hospital between January, 1944, and September, 1949, and attempted to assess the infection-rate and the mortality due to infections. Within this group the mortality-rate fell in 1947 and 1948 but rose slightly in 1949, when there was an increase in the number of deaths within fortyeight hours of admission. Despite this increase, there was a pronounced drop in the percentage of deaths due to infection. This fall coincided with the transfer of infants from the old premature-baby wards to a new cubicled unit; and Dr. Guthrie concluded that the decrease was due to this isolation in cubicles with a fully trained nursing-staff throughout the twenty-four hours, and to improved ward-cleannig facilities.

Dr. A. E. McCandless (Liverpool) spoke of the value of straight x-ray films of the abdomen in the diagnosis of intestinal obstruction in the newborn. Gas was present in the stomach immediately after birth, and within the first hour the proximal portion of the small bowel was outlined. At the third hour the colon could be visualised, and by the eighth hour gas in the pelvis. In Liverpool an investigation was being undertaken to determine the rate of passage of gas through the bowel of premature infants; preliminary observations suggested that this was similar to that in full-term infants. In congenital intestinal obstruction, arrest of the passage of gas could be seen on the straight x-ray film a few hours after birth. A barium meal, which involved the risk of aspiration, was a less safe procedure.

Dr. P. D. Moss (Liverpool) described an apparent periosteal reaction found in radiographs of the long bones of premature infants. Of 63 such infants, 26 had shown these changes in one or more bones. Syphilis was excluded; and the explanation was still unknown.

Birth Weight and Subsequent Weight

Illingworth (*Brit. M. J.*, **1**:96, 1950) writes that the growth in weight up to the age of 3 years of 1,343 children of different birth weights was investigated.

The average male child who at birth weighed 5½ lb. (2·5 kg.) or less weighed consistently less than the average child of a larger birth weight. At the age of 1 the mean weight of the child who at birth weighed 5½ lb. or less was 20 lb. 12 oz. (9·41 kg.) (male) and 19 lb. 11 oz. (8·93 kg.) (female). The mean weight of the child who weighed 7 lb. 2 oz. to 7 lb. 6 oz. (3·23 to 3·35 kg.) at birth was 22 lb. 5 oz. (10·12 kg.) (male) and 21 lb. 13 oz. (9·89 kg.) (female). The corresponding figures for the child who weighed 9½ lb. (4·31 kg.) or more at birth were 24 lb. 7 oz. (11·08 kg.) (male) and 23 lb. 3 oz. (10·52 kg.) (female). The same gradation of weight in relation to birth weight was shown in all the age groups studied.

The average male child who at birth weighed 9½ lb. or more weighed more at 1 year than the child whose birth weight was 5½ lb. or less at 2 years. The average male or female child who weighed 9½ lb. or more at birth weighed more at 2 than the child whose birth weight was 5½ lb. or less did at 3 years.

Mothers are occasioned a great deal of worry by being told that their child is under weight for its age. A considerable proportion of so-called under-weight children are found to be of average weight when due attention is paid to age, sex, and weight at birth.

Disseminated Visceral Lesions with Extreme Eosinophilia

Zuelzer and Apt (*Am. J. Dis. Child.*, **78**:180, 1949) present a group of cases characterized by eosinophilia of the blood and bone marrow, hyperleukocytosis and hyperglobulinemia persisting over long periods in young children ranging in age from 18 months to 3 years and presenting variable clinical pictures. Among the manifestations were hepatomegaly, pulmonary infiltrations, asthmatic complaints, joint symptoms, urticaria and convulsions. Through much of their course, however, the majority of the patients were free of symptoms. The essential unity of the conditions grouped together here is based on the character of the pathologic lesions demonstrated, by biopsy specimens or at autopsy, in the liver in 4 cases. The lesions consisted of necrosis, granuloma formation and severe eosinophilic infiltrations and corresponded to those described by other authors in the lungs of patients with the so-called Loeffler syndrome. They are interpreted as the expression of a common pathologic process of variable localisation and severity, the nature of which is regarded as an allergic-hyperergic tissue response to undetermined antigens. In contrast to the picture of Loeffler's syndrome in adults, with eosinophilia and leukocytosis of usually moderate degree and with predominantly pulmonary localization, the process in young children is likely to affect the liver and tends to be associated with a greater distortion in the blood picture. Loeffler's syndrome may be regarded as a special case of pulmonary involvement in a broad range of allergic phenomena. The clinical picture depends on the organs involved and on the severity of the process. Further observations are needed to outline the entity, which appears to be common. Differentiation of these cases from leukemia is necessary. In general, the condition appears to be benign and self-limited, though often of long duration.

Chloramphenicol in Infantile Gastro-enteritis

Rogers and others (*Brit. M. J.*, **2**:1501, 1949) write that as a routine, in a children's hospital in Birmingham, England, organism in stool of infants under the age of 1 year were studied. Bac. coli was isolated from the stool of 86 babies. Those suffering from symptoms of gastro-enteritis were treated with sulphonamides, penicillin, streptomycin and lastly, with chloramphenicol in addition to parenteral administration of fluids and symptomatic treatment. The results with sulphonamides, penicillin and streptomycin were not encouraging. The results with chloramphenicol was most successful and promising. Chloramphenicol was administered as a suspension with tragacanth, flavoured with syrup of raspberry and choloroform water. Complications with the drug were occasionally green stools, dermatitis round the buttocks.

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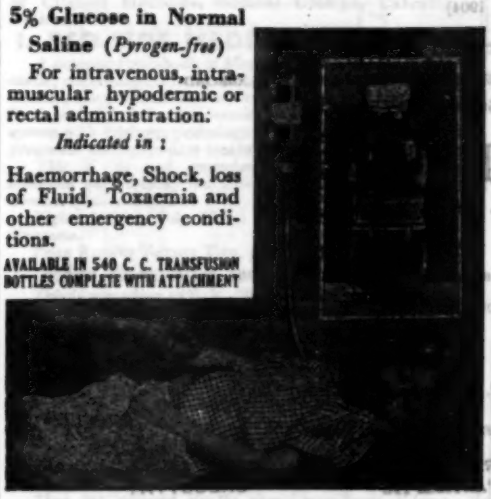

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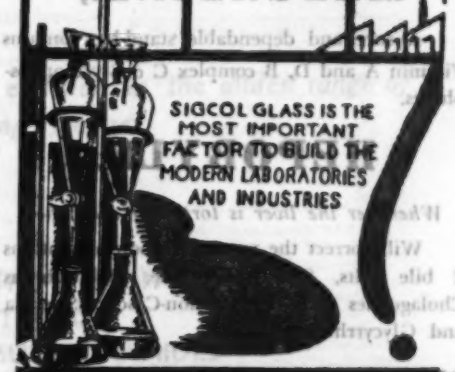

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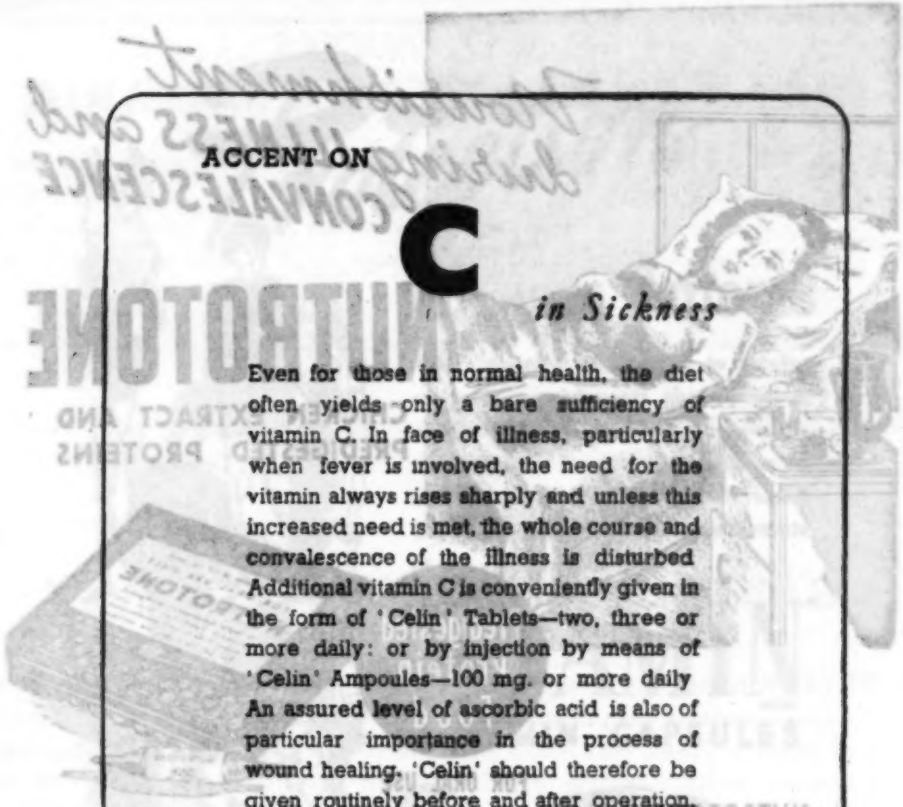

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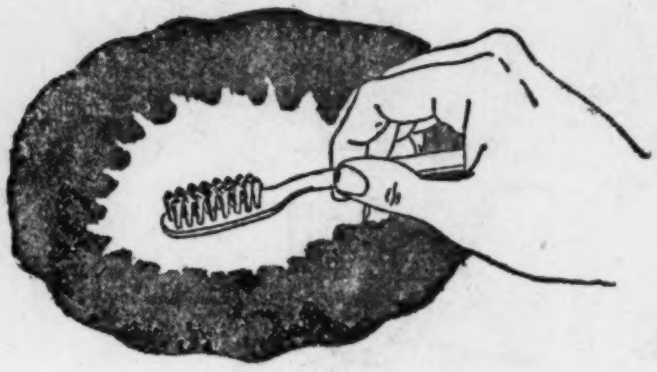

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